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ABSTRACT

The Grants Bilingual-Bicultural Program provided for the linguistic and academic needs of children with language limitations in English and Spanish, children functional only in Spanish or English and children functional in the Keresan or Navajo language with limitations in English. The evaluation design determined program effects in English language development, Spanish language development, cultural perceptions and attitudes, and academic achievement in science, mathematics, and social science. Pre-test and post-test measures were used for experimental and control group children in grade levels 1, 2, and 3 at 6 schools representing at least 4 ethnic groups and language references. The statistical findings showed that children tended to score higher on the Cultural Sensitivity Test at progressively higher levels in the first 3 elementary grades, that ideas depicting native cultural references have been discussed by teachers in the program, that children in the bilingual program are advancing in the Spanish language arts, and that more structural activities are needed for the Spanish-surnamed child who operates with a Spanish-English mixed language reference base. Observations included that administrative encouragement and support were very apparent and that program personnel were very enthusiastic about the program. (Several pages may be light.) (PS)

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BILINGUAL-BICULTURAL DEVELOPMENT

FOR SPANISH, ENGLISH AND INDIAN SPEAKING CHILDREN

IN A SOUTHWESTERN MULTICULTURAL ENVIRONMENT

A REPORT OF STATISTICAL

FINDINGS AND RECOMMENDATIONS FOR

THE GRANTS BILINGUAL EDUCATION PROJECT

Grants, New Mexico

RC 006526

SOUTHWESTERN COOPERATIVE EDUCATION LABORATORY
ALBUQUERQUE, New Mexico

by
Atilano A. Valencia, Ph.D.
July 31, 1972

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PREFACE

This report is based on data collected by an evaluation team through the Southwestern Cooperative Education Laboratory between September, 1971 and April, 1972. The author of this report was responsible for coordinating the overall study, including the conceptualization of the evaluation plan, interview guidelines, interpretation of computor data, and the composition of this document.

Mr. Anthony Galaz and Mr. Gilbert Villareal, Albuquerque Public Schools, and Mrs. Ida Carrillo and Sister Jacinta Gallegos, Southwestern Cooperative Education Laboratory, assisted in conducting interviews and classroom observations in the Grants Bilingual-bicultural Program. Dr. Orval Hughes, Southwestern Cooperative Educational Laboratory, was responsible for supervising the Laboratory team involved in the pre-testing and post-testing activities. And Mr. Dick Lenz, Southwestern Cooperative Educational Laboratory, was responsible for the computor data processing.

The excellent performance extended by the abovementioned educators and technicians, as well as the splendid cooperation by Grants administrators, teachers and other personnel contributed to the realization of this study.

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I. INTRODUCTION

The first two parts of this report, the Introduction and the Description of the Program, have been presented in previous evaluation reports. These two parts are herewith presented in similar content to provide background information for the reader who has not reviewed the previous reports. They also serve to maintain continuity in the written document. For Grants Bilingual Education Program personnel who are well familiar with previous documents, parts III-VI present the essential data and findings of this year's evaluation study.

The Grants Bilingual Program is designed to carry out four major bilingual-bicultural education objectives. The first objective is to facilitate the learning process by using the child's native language to introduce first grade curriculum concurrently with his learning to communicate in a second language--English. The second objective is to provide a communication arts program in the child's native language that serves to reinforce and further develop his ability to communicate in his first language. Since non-Spanish speaking children (Spanish surname, Indian, and Anglo) also populate the Grants' schools, the Spanish communication arts program has been offered to a large percentage of these children.* Additionally, the third major objective provides special emphasis to native cultural characteristics (other than language) as a means to develop and reinforce favorable perceptions of children toward their native cultural heritage. Finally, by exposing children to multicultural media and activities, it is expected that all of the children

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* Spanish as a second language has been offered to all children in the Bilingual Education Program except where Indian children are presented with the Indian-dialect/English bilingual component.

in the program will develop favorable perceptions and attitudes toward relationships with people from cultures other than their own.

Pre-service and inservice training activities have been provided for program personnel to gain an understanding of the underlying principles in bilingual-bicultural education. Furthermore, these institutes have been designed for teachers and teacher aides to gain familiarity with bilingual-bicultural materials and media, as well as instructional competencies with bilingual children. One of the major recommendations in the 1971-72 evaluation report referred to the continuation of this type of training component for program personnel.

Program information for parents through school media, meetings and conferences was another recommendation suggested in the previous evaluation study. Thus parental involvement through visitations, conferences and as aides in the program have been suggested in interviews with program personnel and in previous evaluation reports. The extent to which these objectives have been realized also has been a feature in evaluation study.

Specifically, the program's objectives are:

1. To help students learn communicative skills in their native and second language.

2. To help students become proficient in two languages which will, in turn, facilitate their educational development and academic/vocational aspirations.

3. To help students learn subject matter concepts in two languages; particularly in social science, science, mathematics and the arts.

4. To help students maintain or develop a positive self-concept by studying their native cultural heritage (history and cultural aspects).

5. To help students recognize the advantages of living in a multicultural environment.

6. To help students develop favorable perceptions and and attitudes toward the characteristics of other cultures, particularly those found among children in the school environment.

7. To develop teacher and teacher aides competencies in identifying, selecting, designing and using bilingual-bicultural media and materials, and instructional strategies.

8. To develop effective liaison between the school and parents from different ethnic groups in the community and, therefore, increase parental participation and support in the bilingual-bicultural program.

II. DESCRIPTION OF THE PROGRAM

The Grants Bilingual-Bicultural Program was conceptualized to provide for the linguistic and academic needs of children with language limitations in English and Spanish, children functional only in Spanish, children functional only in English, children functional in the Keresan language and limited in English, and children functional in the Navajo language and with limitations in English.

All children with limited or no ability in English are provided with a program in English as a second language. For Spanish-speaking children with limited ability in English, Spanish is used to clarify subject-matter concepts. The Keresan and Navajo dialects also are used with Indian children to clarify subject-matter concepts, particularly with children who have little ability in English. The communication arts in Spanish and English, especially reading, writing, vocabularly and spelling are provided for Spanish surname children. Because of the unavailability of sufficient written materials in Keresan and Navajo, communication arts development in these two languages have not been emphasized in the bilingual objectives of the program. However, clarification of concepts in the two languages have been an important element in the program. Moreover, oral communication and some written symbols in the two languages have been encouraged in the learning activities with these children.

The Grants Bilingual-Bicultural Program was offered for the first time in the District in the 1960-70 school year. Six schools were included in the program representing at least four ethnic groups and language references. The participating schools have been Cubero Elementary School, Seboyeta Elementary School, San Mateo Elementary School, San Rafael Elementary School,

and Sierra Vista School. This year the Mesa View School was included as a control group school. Because of the difficulty in arranging for testing and observation-interview services at the Fence Lake School, this school was not included in this year's evaluation study. The representation of the four cultural groups in the six schools is a variable that has affected program emphasis. For example, in the Cubero School the ethnic composition is predominantly American Indian, using the Keresan language, with about 30 percent Mexican American and about 4 percent Anglo American.* On the other hand, the ethnic composition in the Seboyeta School is predominantly Mexican American with about 30 percent American Indian and about 3 percent Anglo. The San Mateo is is predominantly Mexican American with little or no representation of children from the two other ethnic groups. San Rafael also is predominantly Mexican American, with about 25 percent Anglo American and a very small number of Indian children. The Fence Lake School is predominantly Navajo with little or no representation of the three other cultural groups (Mexican American, Anglo American, and Laguna or Acoma Pueblo Indians). Sierra Vista, located in Grants, has the largest enrollment among all of the experimental schools. Here, too, the Mexican American enrollment is the largest, with about 15-20 percent Anglo American representation and a relatively small number of American Indian children. Since these figures tend to vary across grade levels, they are presented as estimates. Nevertheless, these estimates have been sufficiently close to derive percentage samples for the purpose of the evaluation study.

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* In this study, the terms Anglo American, American Indian, and Mexican American are used in a cultural rather than a racial frame of reference. Also, the term Mexican American is used synonymously with the terms Spanish American, Hispano, and Chicano.

III. EVALUATION DESIGN

Statistical Analyses Design

The evaluation design was conceptualized to determine program effects in English language development, Spanish language development, cultural perceptions and attitudes, and academic achievement in science, mathematics, and social science. The various variables and measuring instruments relative to these general areas are described in greater detail in subsequent paragraphs.

Since this evaluation covers the third year of the project, pre-test and post-test measures were used for experimental and control group children in grade levels one, two, and three. Analyses of variance were performed to ascertain probability gain measures for each experimental group and in relationship to all of the given language, cultural, and subject-matter variables. Additionally, a percentage gain factor was used to facilitate interpretation of statistical data. And analyses of covariance were performed to determine differences between group scores and between experimental and control group scores. One of the analyses between experimental groups was performed by ethnic group, school and grade level. A second set of analyses between experimental groups was performed by ethnic groups across all experimental schools. This was carried out especially where the ethnic group representation by school was relatively small for statistical purposes. And a third series of analyses was performed to ascertain differences between experimental and control groups by ethnic groups, school and grade level. Again, another series of analyses was undertaken by ethnic group across all experimental schools as compared to the control group school, especially where one or more ethnic group representations by school appeared

relatively low.

The statistical analyses plan to ascertain experimental and control group gains and differences in terms of all of the variables measured by the selected tests was conceptualized as follows:

1. Analysis of variance to ascertain experimental group achievement in Oral Spanish among Mexican American children in Grade Level 1, using the Spanish Oral Capacity Test.

2. Analysis of variance to determine experimental group gains in Spanish language by ethnic group, school and grade level, based on the Test of Basic Skills.

3. Analysis of covariance to measure experimental ethnic group differences in Spanish language scores by grade level across all schools, using the Test of Basic Experiences.

4. Analysis of variance to determine experimental group achievement in oral English by ethnic group, grade level and school, based on the SWCEL Oral Language Proficiency Test.

5. Analysis of covariance to determine ethnic experimental group differences in oral English by grade level across all schools, based on the SWCEL Test.

6. Analysis of variance (post-test comparison only) to ascertain differences between experimental and control groups in oral English by ethnic group, grade level and school, based on the SWCEL Oral Language Proficiency Test.

7. Analysis of variance (post-test comparison only) to measure experimental and control group differences in oral English by ethnic groups, grade level and across all schools, based on the SWCEL Oral Language Proficiency Test.

8. Analysis of variance (post-test comparison only) to measure ethnic experimental and control group differences by grade level across all schools, based on the SWCEL Test.

9. Analysis of variance to measure experimental group pre-test/post-test variances in English vocabulary by ethnic group, school and grade level, using the Peabody Picture Vocabulary Test.

10. Analysis of covariance to asertain ethnic experimental group differences in English vocabulary by grade level across all schools, using the Peabody Picture Vocabulary Test.

11. Analysis of variance to determine experimental and control group differences (post-test comparison only) in English vocabulary by ethnic group, school and grade level, using the Peabody Picture Vocabulary Test.

12. Analysis of variance to measure experimental and control group differences in English vocabulary by ethnic groups and between ethnic group (experimental school groups combined), using the Peabody Picture Vocabulary Test.

13. Analysis of variance to ascertain experimental group achievement by ethnic group, school and grade level in science, mathematics, language and social science concepts, based on the Test of Basic Skills (English version).

14. Analysis of covariance to determine experimental group differences by school and grade level in science, mathematics, language and social science concepts, based on the Test of Basic Skills.

15. Analysis of variance to determine experimental group achievement by ethnic group and grade level across all schools in science, mathematics, language and social concepts, based on the Test of Basic Skills (English version).

16. Analysis of variance to ascertain experimental and control group differences (post-test comparison only) by ethnic group, school and grade level in science, mathematics, language and social science concepts, based on the Test of Basic Skills (English version).

17. Analysis of variance to measure first grade experimental and control group differences (post-test comparison only) by ethnic groups and between ethnic groups in science, mathematics, language and social science concepts, based on the Test of Basic Skills (English version).

18. Analysis of variance to measure experimental group gains in reading, mathematics and language by ethnic group, school and grade level, based on the SRA Achievement Test, published by Science Research Associates.

19. Analysis of variance (post-test comparison only) to determine experimental and control group differences in reading, mathematics and language group, school and grade level, based on the SRA Achievement Test.

20. Analysis of variance (post-test comparison only) to ascertain experimental and control group differences in reading, mathematics and language by ethnic group and grade level across all schools, based on the SRA Achievement Test.

21. Analysis of variance (post-test comparison only) to measure experimental and control group differences in reading, mathematics and language between ethnic groups in grade levels two and three across all schools, based on the SRA Achievement Test.

22. Analysis of variance to determine experimental groups changes in multicultural perceptions by ethnic group, school and grade level, based on the SWCEL Cultural Sensitivity Test.

23. Analysis of covariance to ascertain ethnic experimental group differences in multicultural perceptions by grade level across all schools, based on the SWCEL Cultural Sensitivity Test.

24. Analysis of covariance to ascertain experimental group differences in multicultural perceptions among three ethnic groups and between three grade levels, based on the SWCEL Cultural Sensitivity Test.

25. Analysis of variance to determine experimental and control group differences in multicultural perceptions by ethnic group, school and grade level, based on the SWCEL Cultural Sensitivity Test.

Test Instruments and Related Variables

The Southwestern Cooperative Educational Laboratory (SWCEL) Test of Oral English Production was used to measure oral English proficiency of first grade children in the program. Three linguistic areas are covered by this test: pronunciation, structure, and vocabulary. It is designed for particular application with children with limited or no English speaking ability. Thus the instrument has greater relevancy for non-English speaking children who have not been provided with an English as a second language program. It can be used effectively to ascertain degree of oral language development on a pre-test versus post-test plan.

The Peabody Picture Vocabulary also has been used to provide an English language measure, with particular reference to vocabulary development. The test provides a Vocabulary Raw Score measure, as well as an I.Q. vocabulary score. However, the primary reference in this study is in vocabulary achievement rather than I.Q. I.Q. has not been a variable for consideration in any of the evaluation studies conducted for the Grants Bilingual-bicultural Program, especially where the variable carries only an English language component. Thus this test is used in this study to provide only a measure of vocabulary improvement with particular reference to grade levels two and three.

The Spanish Oral Capacity Test can be used to determine oral Spanish ability of first grade children. Although this test is not designed to provide a measure of specific language areas as compared to the SWCEL Test of Oral English production, it nevertheless provides an indication for bilingual educators to ascertain degree of beginning ability

in oral Spanish. Thus this test can be used to determine if the Hispano child in the United States has some phonetic and structural proficiency in his native language. However, once this has been determined, this test has some serious limitations as a pre-test/post-test instrument. It is limited in the number of variables it can measure, for the maximum score has been found to be too low in providing a sufficiently valid post-test measure for the Spanish-speaking child. With reference to these limitations, the test has been used in this study primarily to provide an indication of the Spanish-speaking ability of children entering the first grade. In this respect, too, the test can help program personnel design a bilingual program for this type of child.

The Test of Basic Experiences (TOBE), published by CTB/McGraw-Hill in Monterey, California, can be used to measure the proficiency level of a student in Spanish language development, science, mathematics, and social science concepts. Since the test can be administered in either Spanish or English, it provides a measure of bilingual ability in Spanish and English. The General Concepts part of the test was used in this study to measure the Spanish language ability of program students. Additionally, the test can be used as an achievement measuring instrument of concepts in at least three subject-matter areas: science, mathematics and social science. This year the test was administered to provide a measure of program and non-program children's achievement in these three areas. A similar measure can be obtained in Spanish. While this was not undertaken in this year's evaluation study, it has been proposed for the year 1972-73.

The SRA Achievement Series, published by Science Research Associates, was used to provide a measure of achievement in reading, mathematics and

language. In previous years, the California Achievement Test has been used. However, this year the SRA Test was used in order to correspond closely to the testing series offered by the school system. While this has affected some limitations in carrying out a longitudinal camparison for this year, the feasibility of administering tests and the corresponding test data from the District can prove advantageous as the program continues in operation. And while the TOBE has been used to provide an achievement measure in grade level one, the SRA has been used principally for a measure of achievement in grade levels two and three.

The Cultural Sensitivity Instrument, designed by the author of this report, measures the child's perceptions or attitudes toward relationships between three American cultural groups (Anglo American, American Indian, and Mexican American). It is pictorial and manipulatory in nature and gives a quantitative attitudinal measure. Nine variables are given in the test. The first category refers to the Mexican American child's perception about Mexican American children's relationship with Mexican Americans, Anglo Americans, and American Indians; the second category pertains to the Anglo American child's perception about Anglo American children's relationship with Mexican Americans, Anglo Americans, and American Indians; and the third category refers to the American Indian child's perception about American Indian children's relationship with Mexican Americans, Anglo Americans, and American Indians.

The Cultural Sesitivity Test uses a social distance scale as a measuring feature, using a centimeter continuum. The higher the score, the greater is the positive attitude of the child toward his own and/or two other American ethnic

groups. Preliminary data from a pilot study indicate that the reliability of the test is beyond .90, in terms of the Pearson r.

Due to the absence of comparable test instruments, further study is needed to increase the validity reference of the test. However, the author has tried the test with children between the ages of five and ten. Consistent behavioral patterns were observed as compared to oral interviews with ten children of the same age groups. Further experimentation will ascertain degree of validity with children of different age groups. The test results from this evaluation study continue to provide favorable indicators relative to the validity of the instrument. And with the absence of similar types of measuring instruments, it also continues to serve as an attitudinal and perceptual measure relative to children in a multicultural setting.

The Cultural Sengitivity Test data were examined on a pre-test versus post-test basis, using analysis of covariance, to ascertain attitudinal changes among experimental group children over an eight month month period. The test was administered individually among a sample of first, second, and third grade students (including the three aforementioned ethnic groups) in the bilingual/bicultural program.

A questionnaire was designed to be used in interviewing a sample of program and non-program teachers and administrators. This instrument is designed to ascertain teacher and administrative perceptions about the various bilingual program components. The instrument is designed to reveal areas of strength in the program, as well as aspects that require modification or expansion.

All of the testers in the testing team were trained by the SWCEL in testing methods and procecures relative to each instrument used in the Grants evaluation study. Rater reliability has been controlled as nearly as possible, by training as well as by the nature of the scoring procedures and rating scales incorporated with the instruments.

STATISTICAL FINDINGS

Experimental Group Achievement in Oral Spanish

The Spanish Oral Capacity Test was administered to first grade Mexican American children in the Cubero, San Rafael, and Sierra Vista elementary schools. While the samples in the Cubero and San Rafael schools were limited to nine students, the sample in the Sierra Vista School was 25 and sufficiently high to draw valid interpretations from the statistical findings. The findings indicate that Mexican American children in these three schools have a Spanish speaking background prior to exposure to Spanish language development in the Bilingual-bicultural Program. With the scores in these groups measuring within seven to ten points of the maximum possible score of 32, it can be concluded that it is possible for these children to reach a maximum score after one year of Spanish language instruction. The three group means in Table I indicate that the maximum score was not completely achieved among all the children tested. The greater variance in the standard deviations in Cubero and Sierra Vista suggests that the scores of some of the Mexican American children in these groups, who had lower beginning proficiency levels in Spanish, tended to affect the post-test mean scores. Gains were noted in San Rafael and Sierra Vista, with a positive significant reading found at the .05 level of confidence in the San Rafael group. It also is apparent that the Mexican American children in the San Rafael group tended to be more homogeneous in their responses in the pre-testing and post-testing as compared to the two other experimenal groups.

Since analysis of covariance was used in the statistical analyses, all of the pre-test means were adjusted to allow for any beginning variances between the three ethnic groups. It is possible that greater achievement

variances between the ethnic groups would have been obtained with equalized experimental samples. In future testings, stratified sampling of the three ethnic groups may increase the significance of the F ratios. Nevertheless, based on this year's findings, it can be concluded that as bilingual education students progress through more advanced levels of Spanish language instruction, Spanish language achievement differences tend to appear with greater frequency between Spanish surname children and the two other cultural groups in the program. To ascertain the consistency of this phenomenon at higher grade levels, a similar analysis may be performed in subsequent evaluation studies.

Spanish Language Achievement in Grades Two and Three

The general concepts component of the Test of Basic Skills was administered in Spanish to experimental group children in grades two and three to ascertain their proficiency in Spanish. While the comparative achievement means are not expected to be as high based on this test as compared to a program criterian test, it nevertheless provides a measure of Spanish language progress over a one-year period. Progress on this variable is found in the majority of the observations, with the most valid findings found among experimental groups with the larger samples.* Significant gains at the .05 level of confidence are found among second grade Mexican American children in the San Mateo and Sierra Vista schools. The Sierra Vista data, with 50 second grade experimental group children, especially lends validity to this finding.

A comparative analysis was performed to determine differences in Spanish language achievement between the three cultural groups in the Bilingual-bicultural Program. Table III in the Appendices gives the results of this analysis, with particular reference to grades two and three. As would be expected, the Spanish language means are consistently higher among Mexican American children as compared to the two other ethnic groups. The most significant difference is found in the third grade between Mexican American children and Anglo American children, with the variance occurring at the .01 level of confidence in favor of Mexican American children. The other significant variances appear between American Indian and Mexican American children in grade three, with the differences approximating the .05 level of confidence in favor of Mexican American children.

*These findings are given in Table II of the Appendices.

Oral English Proficiency Among First Grade Experimental Group Children

The SWCEL Oral English Proficiency Test was administered to a sample of program children in the Cubero, San Rafael, Seboyeta, and Sierra Vista schools. Because some of the samples were relatively small due to the low representation of one or two ethnic groups in some of the schools, significant achievement measures were not possible through all of the statistical pre-test/post-test comparisons. While this limited the number of significant probability indications, the gains were sufficiently high in at least three comparisons to indicate significant differences at the .05 and .01 level of confidence.* These significant gains occurred among Mexican American first grade children at the San Rafael school in pronunciation (.05 level of confidence), among Mexican American first grade children at Sierra Vista in vocabulary and pronunciation (.01 and .05 levels of confidence respectively), and among Anglo American children at Sierra Vista in vocabulary (.01 levels of confidence). A close examination of the data in Table IV shows that experimental group means in all of the schools tend to correspond in vocabulary and pronunciation. The greatest difference between the groups appear in English structure. This especially appears to be a factor in Sierra Vista, where Anglo American children's scores are relatively higher as compared to those of American Indian and Mexican American children. On the other hand, the mean scores on this same variable among American Indian children in Cubero and Mexican American children in San Rafael appear relatively close to those of Anglo American children at Sierra Vista.

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* The Statistical findings in oral English proficiency are given in Table IV of the Appendices.

Since the sample of students in the various schools, who were given the SWCEL Test, is at least 50 percent lower than the Mexican American sample in the Sierra Vista School, a comparative analysis between the schools cannot be accurately provided.

Based on previous evaluation findings, it has been noted that Mexican American children in Grants tend to score lower than Anglo American children in oral English structure. Table V in the Appendices supports this finding, which indicates a significant difference (.05 level of confidence) on this variable between the two cultural groups, with the higher mean in favor of Anglo American children. A similar mean variance is found in the statistical comparison between American Indian and Anglo American children. With a sampling group comparable to the "n" in the Mexican American and Anglo American statistical analysis, significant statistical difference (at least at the .05 level of confidence) would have been found in the latter comparison as well. In terms of these and earlier findings, oral English structure continues to represent a language area which requires further emphasis in the Grants Bilingual Program.

The oral English proficiency of first grade experimental group children was compared to children of the same ethnic group in a control school. The statistical findings in Table VII of the Appendices show a close similarity between the two groups on all of the SWCEL Test variables. On the other hand, the statistical findings in Table VIII in the Appendices reveal higher means in English structure among Anglo American experimental children as compared to Mexican American and American Indian children in the control school. Because of the smaller samples in these analyses, significant differences in terms of probability statistics were not indicated. However,

the comparative differences between the variables are reflected in the percentage readings. In every comparison, structure appears to have the greatest difference between the groups, with higher means scored by experimental group Anglo Americans. This finding gives further validity to the findings illustrated in Table VII, which suggests increased attention to English structure for Mexican American and American Indian children.

Experimental Group Achievement in English Vocabulary Based on the Peabody Picture Vocabulary Test

The Peabody Picture Vocabulary Test was used to provide a measure of English vocabulary achievement for grades two and three. Table IX in the Appendices indicate percentages gains on this variable among the majority of the experimental groups. Because of the small samples in each testing group, significant gains based on probability statistics are not given additional interpretation in this part of the study.

A comparative analysis was performed to ascertain significant differences between ethnic groups on this variable. With the sample of experimental Anglo American and American Indian children at least fifty percent lower as compared to the sample of Mexican American children, any significant differences between the groups in terms of probability statistics would vary in degree of accuracy. Nevertheless, the majority of the findings show a relatively close relationship between all of the experimental means, with Anglo American scores measuring slightly higher than Mexican American scores. Slightly higher mean scores also are found among experimental Anglo American children as compared to control group Mexican American and American Indian children. Without considering the disproportionality of the samples, especially between Mexican American and Anglo American second grade children, the statistical findings indicate these differences at the .01 level of confidence.* On the other hand, no significant differences are found

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* These findings are illustrated in Table XII of the Appendices.

between second grade experimental group children and control group children where ethnic groups are held constant on this particular language variable. This observation suggests continued emphasis in English vocabulary development for both Mexican American and American Indian children.

Experimental Group Achievement in Science, Mathematics, Language and Social Science Concepts

The Test of Basic Skills (English version) was administered to experimental and control group first graders to determine their comparative achievement in science, mathematics, language and social science concepts.

Experimental group achievement by ethnic group, school and grade level on the four TOBE variables is illustrated in Table XIII of the Appendices. The statistical findings show significant gains for the majority of the experimental groups. Significant gains at the .01 level of confidence are noted for Mexican American first grade children in Cubero and Sierra Vista in all of the test variables. Mexican American children also gained significantly (.05 level of confidence) in science concepts in the San Rafael School. American Indian children gained significantly in science concepts (.05 level of confidence) and language (.01 level of confidence) in the Cubero School. A significant gain (.05 level of confidence) also is found among American Indian children in language in the Sierra Vista School. High language gains (.05 level of confidence) also are found among Anglo American children in San Rafael and Sierra Vista.

The effectiveness of the instructional program was especially apparent in these test results, with the findings indicating relatively higher percentages and F ratios (based on analysis of variance) as compared to the statistical findings from test instruments in previous illustrations.

Although Mexican American first grade children were found to have gained significantly and with greater frequency as compared to American Indian and Anglo American children in the four TOBE variables, these mean gains (illustrated in Table XIV of the Appendices) are not shown as being statistically greater, in terms of the F ratio, than those of the two other ethnic groups. This comparison is based on analysis of covariance with reference to the .05 level of confidence.

A statistical analysis was performed to ascertain the significant differences between program and non-program children relative to the four TOBE variables. While the findings illustrated in Table XVI of the Appendices show significant gain (.05 level of confidence) on the four variables among Mexican American experimental children as compared to Mexican American children in the control group, these statistical differences are not found in any of the other comparisons.

Another statistical comparison was performed to determine differences between experimental and control group children on the four variables, while also indicating achievement differences between ethnic groups in the two samples. Significant differences were indicated only in one comparison. Anglo American program children scored higher in mathematics and language (.05 level of confidence) as compared to Mexican American control group children. Howevever, this significant difference was not found between Mexican American program children and Anglo American control group children. The means in the latter comparison, while not significantly different, nevertheless, tend to favor the Anglo American group. The data also show Anglo American children's scores slightly higher as compared to those of American Indian children.

The overall findings based on the TOBE reveal that program children are achieving normally and, in some instances, with increased rate in science, mathematics, language and social science concepts. Since no consistent comparative differences were found between program and non-program children on the four variables, it can be concluded that this academic progress is not particularly unique to either the bilingual or non-bilingual instructional program. Again the findings show that in an achievement test administered in English, Anglo American children tend to score slightly higher than Mexican American and American Indian children. And while a significant difference was found between Anglo American program children as compared to Mexican American non-program children, the same degree of difference was not apparent in the statistical comparison between Mexican American program children as compared to Anglo American control group children. It is suggested that this comparison be repeated with a more balanced sample in next year's evaluation study to further substantiate the validity of this finding. It also is suggested that the TOBE be administered both in English and Spanish among experimental group children, particularly among Mexican American and Anglo American children. If it is found that the achievement of Mexican American children is higher than Anglo American children in terms of the TOBE Spanish language version, the hypothesis that language is a variable accounting for differences in achievement will be given greater support; and the need to continue a bilingual program in the Grants School System will be unequivocably established. Present and prior evaluation findings already provide strong evidence in this direction.

Achievement in Reading, Mathematics and Language Among Second and Third Grade Experimental Group Children

The SRA Test was administered to experimental and control group children in grades two and three to determine their achievement in reading, language and mathematics. Table XVIII in the Appendices indicate excellent gain in the majority of the comparisons. Significant achievement gains, based on probability statistics (.05 and .01 level of confidence), are found among second grade Mexican American and Anglo American children in San Rafael relative to all of the SRA variables. Similar gains also are found among third grade Mexican American children in San Mateo and Sierra Vista on the same variables. Significant achievement gains also are noted (.05 and .01 level of confidence) among third grade American Indian children in Cubero, especially in language and mathematics.

Because of the small number of students in some of the samples, significant gains in achievement were not indicated in more of the pre-test/post-test comparisons. Nevertheless, the quantitative differences between the pre-test and post-test means, as well as the higher percentage gains found in the data clearly show that excellent progress occurred in reading, language, and mathematics among the three ethnic groups in the total program.

Although the Anglo American and American Indian samples in this series of analyses are still comparably smaller than the Mexican American sample to provide consistent differences through probability statistics, the findings give a number of indications that may be of interest to the reader. The means of Mexican American second and third grade program children tend to be lower as compared to Anglo American children in the

same grade levels. However, it is possible that this difference may not be as apparent with a larger sample of Anglo American children.

A series of analyses was performed to determine the significant differences between experimental group children and control group children in terms of the three SRA Test variables. The data in Table XX show no significant difference (.05 level of confidence) between second grade program and non-program children relative to reading, mathematics and language. The comparison between Mexican American program and non-program children shows a difference in favor of Anglo American non-program children; however, due to the disproportional nature of the sampling groups (49 to 7), this finding does not provide conclusive evidence. Nevertheless, based on all of the reliable factors in the analysis, it can be concluded that the difference in achievement in reading, mathematics and language (based on the SRA Test) between program and non-program children appears to be small and insignificant. This finding is in particular reference to second and third grade experimental and control group classes among the three ethnic groups in the study.

Statistical analyses also were performed to determine mean differences in achievement between experimental and control group children in terms of ethnic representation, using the same SRA Test variables. The findings relative to these analyses among second and third grade students are found in Table XXI of the Appendices. As was noted in examining the achievement level of the three ethnic groups in grade one, Anglo American children in both program and non-program classes tend to score slightly higher as compared to Mexican American and American Indian children. Significant differences at the .05 level of confidence are

found between Anglo American children and Mexican American children in reading in the third grade. With the higher means found among the Anglo American program and non-program samples as compared to the Mexican American and American Indian program and non-program children, the findings give further support to the hypothesis that language is an intervening variable in measuring subject-matter achievement among children whose first language is other than English. (This observation is particularly based on the fact that the SRA Test is designed for the English speaking child). It also reveals that both Mexican American and American Indian children in grades one and two have not attained a proficiency level in English comparable to English-speaking Anglo American children. And it further indicates little or no difference in English language development between program and non-program children.

Experimental Group Perceptions About Relationships of Children From Three American Ethnic Groups

The SWCEL Cultural Sensitivity Instrument was administered to determine experimental and control group children's perceptions about relationship between children from three American cultural groups. For example, Table XXII in the Appendices shows the mean scores of experimental children by ethnic group, school and grade level in the Bilingual-bicultural Program with reference to their perceptions about the relationship between Anglo American, American Indian, and Mexican American children.

The Cultural Sensitivity Test includes the following variables:

1. Mexican American children's perceptions about the relationship of Mexican Americans with Mexican Americans.
2. Mexican American children's perceptions about the relationship of Mexican Americans with Anglo Americans.
3. Mexican American children's perceptions about the relationship of Mexican Americans with American Indians.
4. Anglo American children's perceptions about the relationship of Anglo Americans with Mexican Americans.
5. Anglo American children's perceptions about the relationship of Anglo Americans with Anglo Americans.
6. Anglo Americans children's perceptions about the relationship of Anglo Americans with American Indians.
7. American Indian children's perceptions about the relationship of American Indians with Mexican Americans.
8. American Indian children's perceptions about the relationship of American Indians with Anglo Americans.
9. American Indian children's perceptions about the relationship of American Indians with American Indians.

The maximum score in this test is 510, with 255 representing the mid-point. This means that any score below the mid-point represents unfavorableness in perceptions or attitudes. Although variances in group scores are revealed in the data given in Table XXII of the Appendices, it is noteworthy that none of the group means appear below the mid-point score. Therefore, the second observation in this analysis relates to degree of change in perception over a period of eight months.

A significant change (.05 level of confidence) is found among second grade American Indian children in the Cubero School, with particular reference to their perceptions of Mexican American children's relationship with Mexican American children. Two other significant changes (.05 level of confidence) appear among first grade Anglo American children in the San Rafael School in reference to their perceptions of Anglo-American children's relationship with American Indian children, and in their perceptions of relationships between American Indians. Both of these changes were in the positive direction. Two other positive and significant changes (.05 level of confidence) are found among Mexican American second grade children in the Sierra Vista School. These differences reflect the way Mexican American children perceive the relationship between Mexican Americans, as well as the way they view the relationship between American Indians and Mexican Americans.

The statistical data show that children tend to score higher on the Cultural Sensitivity Test at progressively higher grade levels in the first three elementary grade. This is particularly evident among Mexican American and American Indian children. Whereas the mean scores among Anglo American first grade children tend to be slightly but consistently higher as compared to the two other cultural groups, this pattern is not found in

the second and third grades. In fact, the mean scores appear higher for the two other ethnic groups. This difference is especially apparent in the Anglo American and Mexican American comparison. Whether this phenomenon is attributed to the cultural heritage component of the Bilingual-bicultural Program or to other unknown factors is a question to be further analyzed in subsequent studies. It is suggested that this question be given special consideration in the fourth year evaluation study.

A comparative analysis was undertaken to ascertain significant differences between experimental means in terms of grade levels one, two, and three. The data in Table XXIV clearly lends support to the trend described in the previous paragraph. The mean scores of Mexican American second grade children as compared to Mexican American first grade children relative to the Cultural Sensitivity Test are consistently higher. This difference also is apparent in comparing Mexican American children's second grade scores.

Among American Indian children the mean differences in favor of the second grade as compared to the first grade are not as apparent as in the Mexican American comparison; however, the trend toward higher mean scores in favor of the third grade children as compared to second grade and first grade children is definitely evident.

The data in Table XXIV shows a regressive trend in Cultural Sensitivity Test scores among second grade Anglo American children as compared to Anglo American first grade children. Since data on a third grade sample was not collected, a comparative analysis between third grade Anglo American children and first grade children is not possible. This type of analysis is recommended in the fourth year evaluation study, including a comparison between fourth grade children and children in the three lower grade levels. It is expected

that the fourth year study will provide sufficient data to substantiate or disprove the foregoing ovservations.

The comparative analysis undertaken this year with program and non-program children clearly reveal higher mean scores in favor of the program group. While only three significant differences (.05 level of confidence) are found in favor of Mexican American experimental group children, the majority of the comparisons indicate a consistent pattern of higher favorable responses on all of the Cultural Sensitivity Test variables in reference to the three ethnic groups in the study.* It also is conceivable that with larger samples significant differences based on probability statistics would be obtained. Nevertheless, the consistent pattern of the present findings suggest that the cultural heritage component of the Bilingual-bicultural Program has positively affected the multicultural perceptions of children in the program as compared to non-program children.

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* These findings are given in Table XXV of the Appendices.

V. REPORT ON PROGRAM COMPONENTS BASED ON INTERVIEWS WITH PROGRAM PERSONNEL AND CLASSROOM OBSERVATIONS

Interviews and visitations by three bilingual-bicultural education specialists in the evaluation team were conducted in Februrary, 1972. The most significant observations reported from these activities are herewith presented.

Interview reports show that achievement and progress among students in the program is principally determined through teacher formulated examinations and observations of student responses. Since this approach can be related specifically to program content, objectives and learning activities in the actual setting as initiated and observed by the teacher, it provides the teacher with meaningful and relevant feedback in the instructional and learning processes.

Observations of classroom references to the native cultural features of Mexican American and American Indian children reveal varying degrees of emphasis. While the language of the child is stressed in developing bilingualism, reference to other cultural references across subject-matter content and learning activities can continue with increased emphasis. Ideas of bulletin board displays depicting native cultural references to fiestas, Christmas, Easter, costumes, songs, proverbs, poems, stories and means of livlihood are being discussed and shared by teachers in inservice training institutes. The statistical findings based on the SWCEL Cultural Sensitivity Instrument show consistent progress in favorable perceptions relative to cultural references and relationships among Mexican American and American Indian program children. For this reason,

it is highly recommended that the Bilingual-bicultural Program be expanded to include all of the children in the Grants schools.

As the program continues teachers are identifying and selecting a greater variety of learning materials. This continuous enthusiam and effort among program teachers is one of the noteworthy features in the program. Administrators and consultants should continue to encourage this activity, especially while bilingual materials are still in the developmental stage by regional and national bilingual education centers.

The Laidlaw Brothers Series is continuing to serve a purpose in Spanish language development. Although this series was not designed for particular use with Southwestern bilingual children, the Grants teachers have been giving advantageous supplementary reference to Southwestern Hispanic-Mexican cultural features. Classroom observations definitely show that children in the bilingual program are advancing in the Spanish language arts. Children have been observed reading and discussing the reading content; thus there is evidence that reading comprehension in Spanish is being developed.

The Miami Linguistics, the Peabody, the Houghton-Mifflin, and Gin and Company--ABC references, coupled with instructional activities, have contributed to effective development in the English language arts among program children. The statistical findings reveal that first grade, second grade and third grade Spanish surname children and American Indian children have not reached achievement levels in the English language arts comparable to Anglo American children. However, the group means appear only slightly below those of of monolingual English-speaker. Since

these children have not experienced the continuous English language exposure that the Anglo American child experiences in the home environment and immediate community, it would be folly to expect them to operate a equivalent levels in English, especially in the first three years at school. One of the expectations of the program is to develop the English communication ability of Mexican American and American Indian children to equal that of their English-speaking counterpart. Future evaluation studies will determine the relative success of the program in reaching this objectives. At the same time, it is expected that Anglo American children will develop second language capabilities, particularly in the Spanish language arts, to enable them to function in bilingual activities in and out of the school setting. Observational data give evidence that monolingual English-speaking children are making progress in Spanish. Again, it cannot be expected that their achievement level in the Spanish language arts will equal that of the Spanish-speaking child in the early years of elementary education. The relative success of the program in developing the bilinguality of the monolingual English-speaking child can be continuously examined in future evaluation studies.

Although the absence of written symbols and reading materials in the Indian dialects have limited the application of comprehensive language arts program, especially in the Keresan dialect, teachers and teacher aides, nevertheless, are using the native language in introducing, clarifying and discussing subject-matter concepts with Indian children. Apart from the academeic component in the program, the native dialect also is used in various song and play activities. Observational and test data (Cultural Sensitivity) show that this has helped in developing favorable

perceptions about the native culture among American Indian children in the program.

Supplementary material and media have been produced by teachers during the school year and in workshops. These materials and media are relative to various grade levels (1-3) and are being used advantageously in the learning process. Due to the uniqueness of the Indian dialects, commercial materials for the American Indian groups are few or non-existent. Teachers and teacher aides in this component of the Bilingual-bicultural Program have worked deligently in translating and developing materials for Indian cultural groups in the schools. A continuation of these effort, for both Spanish and Indian references, will be required as the program is offered at progressively higher grade levels.

Through a media center the teachers have access to various commercial materials, especially in reading. Training in the use of these materials will increase teacher reference to this resource center. This is another feature that may be included in the inservice training program.

The classroom observations reveal advantageous application of grouping in terms of language competency. This approach should be given consideration by all of the teachers and teacher aides in the program. This is particularly important in the Spanish-English bilingual program where competency in Spanish and English varies among Mexican American children. Individualized instruction also is being used, especially in the beginning grades. Greater reference to this instructional mode can be extended relative to pupil needs.

Excellent English as a second language techniques were observed. One of the observational reports suggest increased emphasis in vocabulary development in this language component of the program. The statistical findings also suggest that emphasis is needed in developing English

language structure among Mexican American and American Indian children.

It also is observed that more structural activities are needed for the Spanish surname child who operates with a Spanish-English mixed language reference, as well as for the non-Spanish speaking child. This would place increased emphasis in the speaking component for these types of children. Many of these children, whose comprehension level is greater than their speaking ability, will benefit from this language development approach.

A pre-service training institute is provided for the teachers prior to the opening of school. Inservice training workshops are provided through the University of New Mexico once or twice a month. In the current workshops, teachers are becoming familiar with the formulation of behavioral objectives. In general, favorable comments and enthusiasm relative to the inservice training component are expressed by program personnel in the interviews. The workshops during the year are perceived as especially helpful in providing teachers with ideas on how to relate program activities to program objectives.

Additional consultancy services, as needed and requested by program personnel, will require consideration from time to time. For example, it was observed that the Indian bilingual-bicultural component can use additional consultancy resources and inservice-training emphasis.

Administration encouragement and support is still apparent in the third year of the program. The new superintendent was the former director of the bilingual program and, therefore, is a strong advocate of this type of educational program.

School Board support and encouragement for the continuation of the program was reported in the interviews with school administrators. It is not presently known whether this also represents a long-term commitment,

irrespective of federal support. Nevertheless, this concern must be given a place in the agenda of subsequent School Board and Administration sessions.

Auxiliary personnel, as reported in the interviews, remain generally indifferent toward the program. Counselors, nurses, and librarians work with the total population, thus they have no strong feelings for or against the program. However, in the smaller communities, noncertified personnel appear to express greater interest toward the program.

Although non-program teachers' attitudes toward the program vary from unfavorable to some degree of acceptance, this year's interviews reveal some improvement as compared to previous interview findings. Some of the unfavorable perceptives are traceable to the availability of teacher aides, additional media and equipment found in bilingual program classes as compared to non-program classes. For example, each bilingual classroom has a listening center, tape recorder, record player, cassettes, film strips and a variety of supplementary materials.

A well-planned inservice workshop is needed to familiarize all school personnel with the advantages of bilingual-bicultural education. Since the present program is not all inclusive, the demonstration of its effectiveness can contribute to eventual implementation throughout the system. This also should serve to relieve the concern that bilingual-bicultural instruction will place the monolingual teacher in an instructional disadvantage. (This is an unfounded fear, for the English language component is an important element in Southwestern bilingual programs). Yet, it also can serve to increase teacher sensitivity toward the acceptance of cultural pluralism in our American society, and perhaps increase motivation in learning more about other Southwestern languages and cultures.

Increased interest and commitment by non-program teachers can affect the future development and expansion of bilingual-bicultural education in the system.

Invitations for parents to attend meetings and visit program activities are frequently extended. Information about the program are carried home by children and other sources. While parental involvement has not yet reached a desired level as perceived by program personnel, community cooperation has increased as compared to previous years.

VI. SUMMARY OF FINDINGS AND RECOMMENDATIONS

The Spanish Oral Capacity Test was administered to first grade Mexican American program children. Based on this test instrument, the findings indicate that Mexican American children in the Grants Bilingual-bicultural Program have a Spanish speaking background prior to program exposure. With the scores measuring within ten points of the maximum possible score of 32, it can be concluded that it is possible for these children to reach or surpass the maximum score after one year of Spanish language instruction. Although the findings reveal that the maximum score was not consistently achieved among the several program groups, this can be attributed to the variances in beginning Spanish language ability found among Mexican American children in Grants. Nevertheless, based on this year's findings, it can be concluded that bilingual education students have advanced in Spanish language ability. Additionally, the data show higher Spanish language achievement among Mexican American children as compared to the two other ethnic groups in the study.

The general concepts component of the TOBE was administered in Spanish to experimental group children in grades two and three to ascertain their proficiency in Spanish. In this comparison, too, the Spanish language means are consistently higher among Mexican American children as compare to the two other ethnic groups. The most significant difference is found in the third grade between Mexican American children and Anglo American children, with the variance indicated at the .01 level of confidence. The other significant difference occurred between Mexican American and American Indian children in the third

grade, with the variance approximating the .05 level of confidence in favor of the Mexican American group. This finding supports a second hypotheses which suggests that the Spanish phonetic and structural base of Spanish-speaking or bilingual Mexican American children proves advantageous in developing and enriching their native language ability.

The SWCEL Oral English Proficiency Test was administered to a sample of first grade program children. These findings also reveal achievement gains among all program groups. Based on previous evaluation findings, it has been noted that Mexican American and American Indian children tend to score lower than Anglo American children in oral English proficiency. This year's statistical findings give further support to previous findings. In every comparison, English language structure appears to have the greatest difference between the program groups, with the higher means scored by Anglo American program and non-program children. Thus in terms of this year's and earlier findings, oral English structure continues to represent a language area which requires further emphasis in the Grants Bilingual Program.

The Peabody Picture Vocabulary Test was used to provide a measure of English vocabulary proficiency in grades two and three. The majority of the findings show a relatively close relationship between all of the group means, with Anglo American scores measuring slightly higher than Mexican American and American Indian scores. This observation also points out the need for continuous emphasis in English vocabulary development for Mexican American and American Indian children.

The Test of Basic Skills (English version) was administered to experimental and control group first grade children to determine their comparative achievement in science, mathematics, language and social science concepts. The statistical findings show significant gains for the majority of the experimental groups. The effectiveness of the instructional program was especially apparent in these test results, with the findings indicating relatively higher percentage differences and F ratios (based on analysis of variance) as compared to the statistical findings based on test instruments described in previous illustrations.

The overall findings based on the TOBE reveal that experimental group children are achieving normally and, in some instance, with increased rate in science, mathematics, language and social science concepts. Since no consistent comparative differences are found between program and non-program children on the four TOBE variables, it can be concluded that this academic progress is not particularly unique to either the bilingual or non-bilingual instructional program. And it also can be concluded that bilingual instruction does not necessarily impede achievement across subject-matter areas as compared to monolingual instruction in English.

The foregoing conclusion does not imply that the achievement levels of Spanish-speaking, Indian-speaking or native bilingual children appear comparable to those of monolingual Anglo American children, particular in terms of a test administered in English. The findings show that in an achievement test administered in English, Anglo American children tend to score slightly higher than Mexican American and American Indian children. Based on this observation, it is

suggested that the TOBE be administered both in English and Spanish among bilingual program children, particularly among Mexican American and Anglo American children. If it is found that the achievement of Mexican American children is higher than Anglo American children in terms of the TOBE Spanish language version, the hypothesis that language is a variable accounting for differences in achievement scores will be given further support; and the need to continue a bilingual program in the Grants School will be unequivocably established. Present and prior evaluation findings already provide strong evidence in this direction.

The SRA Test was administered to experimental and control group children in grades two and three to determine their achievement in reading, language and mathematics. Excellent achievement gains also were noted in terms of this test. Again significant differences are found between Anglo American children as compared to Mexican American and American Indian children in both program and non-program classes. This was particularly apparent in reading. Since the SRA Test was administered in English, the findings give further support to the hypothesis that language is an intervening variable in measuring subject matter achievement among children whose first language is other than English. Additionally, the test results show little or no difference in achievement between program and non-program children with respect to the three SRA Test variables. Again it is found that while the bilingual program is not advancing children in the foregoing subject-matter areas on a greater rate as compared to non-program children, neither is it hindering normal achievement progress.

The SWCEL Cultural Sensitivity Test, designed by the author of this report, was administered to determine experimental and control group perceptions about relationships between children from three American cultural groups--Anglo American, American Indian, and Mexican American. In the 1970-71 evaluation study it was found that the difference between pre-test and post-test means relative to the the 9 Cultural Sensitivity variables did not vary significantly among first grade children. First grade scores in this year's study also reveal small pre-test and post-test differences. Part of this observation is attributed to the variances in individual scores, and the other reason is based on the larger period of time required to observe a notable change in the affective domain as compared to the cognitive and psychomotor learning areas.

This year's comparison between first and second grade scores, second and third grade scores, and first and third grade scores clearly support the foregoing rationale. The statistical findings show that children tend to score higher on the Cultural Sensitivity Test at progressively higher levels in the first three elementary grades. This is especially apparent among Mexican American and American Indian children. Whereas the mean scores among Anglo American first grade children tend to be slightly but consistently higher as compared to the two other cultural groups, this response pattern is not found in the second and third grade. In fact, the mean scores on several variables appear higher for the Mexican American and American Indian groups, especially in the Mexican American and Anglo American statistical comparison. Whether this phenomenon is attributed to the

cultural heritage component of the bilingual-bicultural program or to other unknown variables, is a question to be continuously examined in future studies. It is suggested that this observation be give special consideration in the fourth year evaluation study.

The comparative analysis performed this year to determine the significant difference between program and non-program children reveal higher scores on the Cultural Sensitivity Test in favor of program children. The consistency of the findings in favor of the program group suggest that the cultural heritage component in the bilingual-bicultural program have positively affected the cultural perceptions of children in the program as compared to non-program children.

Interview and observational data show that ideas depicting native cultural references have been discussed by teachers in the program. A continuous exchange in ideas also is suggested between program and non-program teachers; for while program students appear to be gaining in favorable perceptions about their own culture and other cultures in the Southwest, the program's multicultural component can easily be incorporated in non-program classes for the benefit of all the children in the Grants School System.

The observation and interview reports also show that teachers are using teacher prepared tests and observations to determine student needs and progress. Since this approach can be related specifically to program content, objectives, and learning activities, it can provide the teacher with meaningful feedback relative to the instructional features in the progam.

Classroom observational data definitely show that children in the bilingual program are advancing in the Spanish language arts. Children have been observed reading and discussing the reading content, thus there is evidence that reading comprehension in Spanish is being developed. There also is observational evidence that monolingual English-speaking children are making progress in Spanish. The relative success of the program in developing the bilinguality of the monolingual English-speaking child can be continuously examined in future evaluation studies.

It also was observed that more structural activities are needed for the Spanish surname child who operates with a Spanish-English mixed language reference base. This would place increased emphasis in the speaking component for these type of children. Many of these children, whose comprehension level is greater than their speaking ability, will benefit from this language development approach.

Administration encouragement and support is still very apparent in the third year of the program. School Board support and encouragement for the continuation of the program was reported in the interviews with school administrators. It is not presently known whether this also represents a long-term commitment, irrespective of federal funding. Nevetheless, this concern must be given a place in the agenda of future School Board and administration meetings.

Program personnel continue to be ethusiastic about the program; this is especially exhibited through their dedication in teaching, involvement in workshops, and participation in the selection and preparation of materials and lessons. And although non-program personnel attitudes vary from unfavorable to some degree of acceptance in reference to the program, this year's interviews reveal some positive perceptions as

compared to previous interview findings. Future involvement in bilingual-bicultural meetings, workshops, conferences, and other related activities by non-program personnel can help promote wider and continuous support for bilingual-bicultural education in the district.

In general, administrators and program personnel reflect optimism toward program growth as school people and community members become increasingly aware of the beneficial aspects of the bilingual-bicultural program. Thus school administrators and program personnel must continue to search for strategies that will enhance this awareness and commitment among school people throughout the system and across cultural groups in the community.

APPENDICS

Statistical Tables 1-25

TABLE I: EXPERIMENTAL GROUP ACHIEVEMENT IN ORAL SPANISH AMONG MEXICAN AMERICAN CHILDREN IN GRADE ONE, USING THE SPANISH ORAL CAPACITY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
Cubero	M.A.	Oral Span.	9	1	25.11	24.67	4.25	9.64	.01	1.77
San Rafael	M.A.	Oral Span.	9	1	22.70	27.00	3.93	3.55	5.94*	18.94
Sierra Vista	M.A.	Oral Span.	25	1	22.28	25.20	6.70	9.99	1.41	13.11

*One astorisk denotes significant difference at the .05 level of confidence in all of the illustrations in the statistical tables.

**Two asterisks indicate significant difference at the .01 level of confidence in all of the illustrations in the statistical tables.

TABLE II: EXPERIMENTAL GROUP GAINS IN SPANISH LANGUAGE BY ETHNIC GROUP, SCHOOL AND GRADE LEVEL, BASED ON THE TEST OF BASIC EXPERIENCES

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
San Mateo	M.A.	Span. G.C.	6	2	16.00	19.50	1.83	1.71	9.80*	21.88
San Rafael	M.A.	Span. G.C.	12	2	12.33	13.58	3.12	4.17	.63	10.14
	A.A.	Span. G.C.	5	2	10.80	13.00	4.62	3.85	.53	20.37
Seboyeta	A.I.	Span. G.C.	5	2	14.80	14.80	.75	4.12	.00	.00
Sierra Vista	M.A.	Span. G.C.	50	2	13.12	15.02	3.52	3.64	6.89*	14.48
	A.A.	Span. G.C.	3	2	12.00	14.00	4.32	3.27	.27	16.67
San Mateo	M.A.	Span. G.C.	6	3	16.17	19.17	2.54	2.41	3.76	18.56
San Rafael	M.A.	Span. G.C.	10	3	16.20	17.60	4.38	4.03	.49	8.64
	A.A.	Span. G.C.	9	3	10.67	9.33	2.67	2.71	.98	12.50
Seboyeta	M.A	Span. G.C.	3	3	19.00	19.67	1.41	.94	.30	3.51
	A.I.	Span. G.C.	4	3	11.50	10.75	3.78	2.95	.07	6.52
Sierra Vista	M.A.	Span. G.C.	34	3	15.09	16.35	4.93	5.36	.99	8.38
	A.I.	Span. G.C.	4	3	13.25	13.25	4.71	5.93	.00	.00

TABLE III: EXPERIMENTAL ETHNIC GROUP DIFFERENCES IN SPANISH LANGUAGE SCORES BY Page 51
GRADE LEVEL ACROSS ALL SCHOOLS, USING THE TEST OF BASIC EXPERIENCES

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
X	M.A.	Span. G.C.	68	2	13.24	15.24	3.46	3.90	.97	NA
X	A.I.	Span. G.C.	5	2	14.80	13.77	.75	4.12		
X	M.A.	Span. G.C.	68	2	13.24	15.04	3.45	3.90	.68	NA
X	A.A.	Span. G.C.	9	2	11.44	14.07	4.32	3.54		
X	A.I.	Span. G.C.	5	2	14.80	14.28	.75	4.12	.12	NA
X	A.A.	Span. G.C.	9	2	11.44	13.40	4.32	3.54		
X	M.A.	Span. G.C.	53	3	15.64	16.77	4.58	4.84	3.70	NA
X	A.I.	Span. G.C.	8	3	12.38	14.12	4.35	4.85		
X	M.A.	Span. G.C.	53	3	15.64	16.40	4.58	4.84	11.39**	NA
X	A.A.	Span. G.C.	11	3	10.45	12.61	2.87	2.45		
X	A.I.	Span. G.C.	8	3	12.38	12.09	4.36	4.85	2.29	NA
X	A.A.	Span. G.C.	11	3	10.45	9.20	2.87	2.45		

The letter X refers to experimental or bilingual program group.
The letters NA means that the statistical analysis was not applied to a given column.

TABLE IV: EXPERIMENTAL GROUP ACHIEVEMENT IN ORAL ENGLISH BY ETHNIC GROUP, GRADE LEVEL AND SCHOOL, BASED ON THE SWCEL ORAL LANGUAGE PROFICIENCY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
Cubero	A.I.	Voc.	8	1	21.75	23.00	1.30	1.00	4.06	5.75
		Pron.	8	1	28.13	28.75	1.96	1.71	.40	2.22
		Struct.	8	1	94.13	97.63	23.24	23.94	.07	3.72
		Total	8	1	144.00	149,38	23.80	24.69	.17	3.73
San Rafael	M.A.	Voc.	8	1	21.88	23.13	1.69	1.05	2.75	5.71
		Pron.	8	1	26.50	29.13	2.29	1.17	7.29*	9.91
		Struct.	8	1	104.88	104.50	20.76	17.00	.00	.36
		Total	8	1	153.25	156.75	22.97	16.41	.10	2.28
Seboyeta	M.A.	Voc.	4	1	20.25	22.50	2.49	1.12	2.04	11.11
		Pron.	4	1	27.25	29.00	1.92	1.41	1.61	6.42
		Struct.	4	1	86.75	83.50	11.78	23.24	.04	3.15
		Total	4	1	134.25	135.00	15.30	25.27	.00	.56
Sierra Vista	M.A.	Voc.	16	1	20.50	22.50	2.15	1.37	9.23**	9.76
		Pron.	16	1	26.50	28.81	3.02	1.91	6.27*	8.73
		Struct.	16	1	74.25	79.88	21.09	15.42	.69	7.58
		Total	16	1	121.25	131.19	24.04	16.18	1.76	8.20
Sierra Vista	A.I.	Voc.	4	1	20.50	22.25	1.12	1.30	3.12	8.54
		Pron.	4	1	27.75	28.50	.83	1.66	2.70	.49
		Struct.	4	1	80.00	83.25	11.51	9.65	.14	4.06
		Total	4	1	128.25	134.00	10.26	11.07	.43	4.48
Sierra Vista	A.A.	Voc.	4	1	21.00	23.25	1.00	.43	12.78**	10.71
		Pron.	4	1	27.72	30.00	1.79	.71	4.11	8.11
		Struct.	4	1	89.75	105.75	13.31	16.60	1.69	17.83
		Total	4	1	138.50	159.00	11.72	16.63	3.04	14.80

TABLE V: ETHNIC EXPERIMENTAL GROUP DIFFERENCES IN ORAL ENGLISH BY GRADE LEVEL ACROSS ALL SCHOOLS, BASED ON THE SWCEL ORAL LANGUAGE PROFICIENCY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff
X	M.A.	Voc.	29	1	20.97	22.74	2.22	1.28	.01	NA
X	A.I.	Voc.	12	1	21.33	22.70	1.37	1.16		
X	M.A.	Pron.	29	1	26.76	28.90	2.77	1.65	.16	NA
X	A.I.	Pron.	12	1	28.00	28.66	1.68	1.70		
X	M.A.	Struct.	29	1	85.86	88.43	24.27	20.02	.44	NA
X	A.I.	Struct.	12	1	89.42	90.96	21.18	21.42		
X	M.A.	Total	29	1	133.59	140.35	27.12	20.77	.11	NA
X	A.I.	Total	12	1	138.75	141.66	21.73	22.35		
X	M.A.	Voc.	29	1	20.97	22.76	2.22	1.29	.56	NA
X	A.A.	Voc.	7	1	22.00	23.14	1.51	.70		
X	M.A.	Pron.	29	1	26.76	28.92	2.77	1.64	2.01	NA
X	A.A.	Pron.	7	1	22.00	23.14	1.51	.70		
X	M.A.	Struct.	29	1	85.86	88.13	24.27	20.03	7.46*	NA
X	A.A.	Struct.	7	1	89.57	102.31	12.95	14.00		
X	M.A.	Total	29	1	133.59	140.08	27.12	20.77	7.17*	NA
X	A.A.	Total	7	1	140.14	157.57	11.43	14.31		
X	A.I.	Voc.	12	1	21.33	22.79	1.37	1.16	.63	NA
X	A.A.	Voc.	7	1	22.00	23.21	1.51	.70		
X	A.I.	Pron.	12	1	28.00	28.68	1.68	1.70	2.72	NA
X	A.A.	Pron.	7	1	28.57	29.97	1.84	1.07		
X	A.I.	Struct.	12	1	89.42	92.88	21.18	21.42	2.87	NA
X	A.A.	Struct.	7	1	89.57	104.21	12.96	14.00		
X	A.I.	Total	12	1	138.75	144.66	21.63	22.36	3.26	NA
X	A.A.	Total	7	1	140.14	156.87	11.43	14.31		

TABLE VI: EXPERIMENTAL VERSUS CONTROL GROUP ACHIEVEMENT IN ORAL ENGLISH BY ETHNIC GROUP, SCHOOL AND GRADE LEVEL, BASED ON THE SWOEL TEST OF ORAL LANGUAGE PROFICIENCY

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
						Pre-	Post		
San Rafael	M.A.	Voc.	8	1	23.13		1.05	.00	.15
Control	M.A.	Voc.	11	1	23.09		.79		
San Rafael	M.A.	Pron.	8	1	29.13		1.17	2.22	2.69
Control	M.A.	Pron.	11	1	29.91		1.00		
San Rafael	M.A.	Struct.	8	1	104.50		17.00	2.62	13.01
Control	M.A.	Struct.	11	1	90.91		17.11		
San Rafael	M.A.	Total	8	1	156.75		16.91	2.45	8.19
Control	M.A.	Total	11	1	143.91		16.88		
Seboyeta	M.A.	Voc.	4	1	22.50		1.12	1.11	2.63
Control	M.A.	Voc	11	1	23.09		.79		
Seboyeta	M.A.	Pron.	4	1	29.00		1.41	1.16	3.13
Control	M.A.	Pron.	11	1	29.91		1.00		
Seboyeta	M.A.	Struct.	4	1	83.50		23.29	.38	8.87
Control	M.A.	Struct.	11	1	90.91		17.11		
Seboyeta	M.A.	Total	4	1	135.00		25.27	.53	6.60
Control	M.A.	Total	11	1	143.91		16.88		
Sierra Vista	M.A.	Voc	16	1	22.50		1.37	1.54	2.63
Control	M.A.	Voc	11	1	23.09		.79		
Sierra Vista	M.A.	Pron.	16	1	28.81		1.91	2.82	3.81
Control	M.A.	Pron.	11	1	29.91		1.00		
Sierra Vista	M.A.	Struct.	16	1	79.88		15.42	2.82	13.81
Control	M.A.	Struct.	11	1	90.91		17.11		
Sierra Vista	M.A.	Total	16	1	131.19		16.18	3.60	9.70
Control	M.A.	Total	11	1	143.91		16.88		
Sierra Vista	A.A.	Voc	3	1	23.33		.47	.13	.57
Control	A.A.	Voc	5	1	23.20		.40		
Sierra Vista	A.A.	Pron.	3	1	30.00		.82	1.26	2.00
Control	A.A.	Pron.	5	1	30.60		.49		
Sierra Vista	A.A.	Struct.	3	1	99.67		14.82	.00	.07
Control	A.A.	Struct.	5	1	99.60		12.91		
Sierra Vista	A.A.	Total	3	1	153.00		14.99	.00	.26
Control	A.A.	Total	5	1	153.40		13.29		

In all of the statistical comparisons, the control groups are represented by samples from the Mesa View School in Grants.

TABLE VII: EXPERIMENTAL AND CONTROL GROUP DIFFERENCES IN ORAL ENGLISH BY ETHNIC GROUPS, GRADE LEVEL AND ACROSS ALL SCHOOLS, BASED ON THE SWCEL ORAL LANGUAGE PROFICIENCY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
						Pre-	Post		
X	M.A.	Voc.	29	1	22.72		1.28	.74	1.61
C	M.A.	Voc.	11	1	23.09		.79		
X	M.A.	Pron.	29	1	28.90		1.64	3.46	3.50
C	M.A.	Pron.	11	1	29.91		.99		
X	M.A.	Struct.	29	1	87.66		20.03	.21	3.71
C	M.A.	Struct.	11	1	90.91		17.11		
X	M.A.	Total	29	1	139.28		20.77	.41	3.33
C	M.A.	Total	11	1	143.91		16.88		
X	A.A.	Voc.	7	1	23.29		.70	.04	.37
C	A.A.	Voc.	5	1	23.20		.40		
X	A.A.	Pron.	7	1	30.00		1.07	1.13	2.00
C	A.A.	Pron.	5	1	30.60		.49		
X	A.A.	Struct.	7	1	104.29		14.00	.29	4.49
C	A.A.	Struct.	5	1	99.60		12.91		
X	A.A.	Total	7	1	157.57		14.31	.21	2.65
C	A.A.	Total	5	1	153.40		13.29		

The letter X in the statistical tables refers to experimental or program groups.
The letter C in the statistical tables refers to control or non-program groups.

TABLE VIII: ETHNIC EXPERIMENTAL AND CONTROL GROUP DIFFERENCES IN ORAL ENGLISH BY GRADE LEVEL AND ACROSS ALL SCHOOLS, BASED ON THE SWCEL ORAL LANGUAGE PROFICIENCY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
						Pre-	Post		
X	M.A.	Voc.	29	1	22.72		1.28	.63	2.09
C	A.A.	Voc.	5	1	23.20		.40		
X	M.A.	Pron.	29	1	28.90		1.65	4.95	5.89
C	A.A.	Pron.	5	1	30.60		.49		
X	M.A.	Struct.	29	1	87.66		20.02	1.56	13.63
C	A.A.	Struct.	5	1	99.60		12.91		
X	M.A.	Total	29	1	139.28		20.77	2.03	10.14
C	A.A.	Total	5	1	153.40		13.29		
X	A.I.	Voc.	12	1	22.75		1.16	.62	1.98
C	A.A.	Voc.	5	1	23.20		.40		
X	A.I.	Pron.	12	1	28.67		1.70	5.51*	6.74
C	A.A.	Pron.	5	1	30.60		.49		
X	A.I.	Struct.	12	1	92.83		21.42	.38	7.29
C	A.A.	Struct.	5	1	99.60		12.90		
X	A.I.	Total	12	1	144.25		22.35	.64	6.34
C	A.A.	Total	5	1	153.40		13.29		
X	A.I.	Voc.	12	1	22.75		1.16	.60	1.50
C	M.A.	Voc.	11	1	23.09		.79		
X	A.I.	Pron.	12	1	28.67		1.70	4.08	4.33
C	M.A.	Pron.	11	1	29.91		1.00		
X	A.I.	Struct.	12	1	92.83		21.42	.05	2.07
C	M.A.	Struct.	11	1	90.91		17.11		
X	A.I.	Total	12	1	144.25		22.35	.00	.24
C	M.A.	Total	11	1	143.91		16.88		

TABLE IX: EXPERIMENTAL GROUP PRE-/POST-TEST VARIANCES IN ENGLISH VOCABULARY BY ETHNIC GROUP, SCHOOL AND GRADE LEVEL, USING THE PEABODY PICTURE VOCABULARY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Cubero	M.A.	1	5	2	58.20	62.20	2.56	3.43	3.49	6.87
	M.A.	2	5	2	81.60	84.80	7.45	5.84	.45	3.92
	A.I.	1	6	2	57.00	59.67	6.66	3.14	.65	4.68
	A.I.	2	6	2	83.33	81.33	12.12	8.22	.09	2.40
San Mateo	M.A.	1	3	2	56.33	59.33	2.05	3.30	1.19	5.33
	M.A.	2	3	2	88.67	91.67	7.13	9.46	.12	3.38
an Rafael	M.A.	1	14	2	60.07	60.71	4.59	4.48	.13	1.07
	M.A.	2	14	2	89.93	86.93	9.83	9.73	.61	3.34
	A.A.	1	5	2	58.20	63.60	5.67	6.50	1.56	9.28
	A.A.	2	5	2	85.20	93.00	15.03	14.59	.55	9.15
Seboyeta	A.I.	1	5	2	55.00	60.00	7.29	4.15	1.42	9.09
	A.I.	2	5	2	83.80	91.80	13.53	10.38	.88	9.55
Sierra Vista	M.A.	1	38	2	56.21	58.18	7.09	6.59	1.53	3.51
	M.A.	2	38	2	86.71	87.00	13.66	12.98	.00	.33
Cubero	M.A.	1	5	3	61.00	59.80	6.36	9.79	.04	1.97
	M.A.	2	5	3	79.80	75.60	9.39	14.89	.22	5.27
	A.I.	1	7	3	58.71	63.14	4.59	8.84	1.27	7.54
	A.I.	2	7	3	76.14	78.14	12.59	17.68	.03	2.05
Seboyeta	M.A.	1	6	3	61.83	66.00	3.24	5.86	1.93	6.74
	M.A.	2	6	3	88.83	91.50	9.26	12.22	.15	3.00
	A.I.	1	6	3	70.17	74.33	11.98	14.91	.23	5.94
	A.I.	2	6	3	99.50	103.83	15.78	19.79	.14	4.36
Sierra Vista	M.A.	1	19	3	61.95	59.95	5.59	5.48	1.17	3.23
	M.A.	2	19	3	89.05	79.74	11.55	11.29	5.98	10.46
	A.I.	1	3	3	63.33	63.67	1.70	2.05	.03	.53
	A.I.	2	3	3	94.00	90.67	12.36	8.22	.10	3.50

Variable 1 represents the Raw Score in vocabulary.
Variable 2 represents a vocabulary I.Q. measure in the Test; however, since the Test was administered only in English, it is not given an I.Q. interpretation in

TABLE X: ETHNIC EXPERIMENTAL GROUP DIFFERENCES IN ENGLISH VOCABULARY GRADE LEVEL AND ACROSS ALL SCHOOLS, USING THE PEABODY PICTURE VOCABULARY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
X	M.A.	1	60	2	57.28	59.06	6.34	5.97	.93	NA
X	A.I.	1	11	2	56.09	60.42	7.03	3.63		
X	M.A.	2	60	2	87.13	86.67	12.35	11.73	.26	NA
X	A.I.	2	11	2	83.55	88.07	12.78	10.63		
X	M.A.	1	60	2	57.28	59.46	6.34	5.97	9.76**	NA
X	A.A.	1	8	2	60.88	64.94	6.37	8.13		
X	M.A.	2	60	2	87.13	87.29	12.35	11.73	7.38*	NA
X	A.A.	2	8	2	90.25	95.81	13.65	13.89		
X	A.I.	1	11	2	56.09	61.00	7.03	3.63	3.56	NA
X	A.A.	1	8	2	60.88	65.50	6.37	8.13		
X	A.I.	2	11	2	83.55	88.21	12.78	10.63	3.27	NA
X	A.A.	2	8	2	90.25	94.84	13.65	13.84		
X	M.A.	1	30	3	61.77	61.87	5.36	6.91	5.55*	NA
X	A.I.	1	16	3	63.88	66.05	9.49	11.99		
X	M.A.	2	30	3	87.47	81.72	11.32	13.24	6.33*	NA
X	A.I.	2	16	3	88.44	89.53	17.48	20.72		
X	M.A.	1	30	3	61.77	61.61	5.36	6.91	1.05	NA
X	A.A.	1	4	3	66.25	64.66	5.56	8.44		
X	M.A.	2	30	3	87.47	82.02	11.32	13.24	1.19	NA
X	A.A.	2	4	3	94.00	87.94	9.51	16.09		
X	A.I.	1	16	3	63.88	67.98	9.49	11.99	.38	NA
X	A.A.	1	4	3	66.25	66.07	5.76	8.44		
X	A.I.	2	16	3	88.44	91.35	17.49	20.72	.37	NA
X	A.A.	2	4	3	94.00	88.09	9.51	16.09		

TABLE XI: EXPERIMENTAL AND CONTROL GRADE DIFEERENCES IN ENGLISH VOCABULARY BY ETHNIC GROUP AND GRADE LEVEL, USING THE PEABODY PICTURE VOCABULARY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
						Pre-	Post		
Cubero	M.A.	1	5	2	62.20		3.43	.80	3.77
Control	M.A.	1	7	2	59.86		4.45		
Cubero	M.A.	2	5	2	84.80		5.84	1.61	6.98
Control	M.A.	2	7	2	90.71		8.10		
San Mateo	M.A.	1	3	2	59.33		3.30	.02	.88
Control	M.A.	1	7	2	59.86		4.45		
San Mateo	M.A.	2	3	2	91,67		9.46	.02	1.04
Control	M.A.	2	7	2	90.71		8.10		
San Rafael	M.A.	1	14	2	60.71		4.48	.15	1.41
Control	M.A.	1	7	2	59.86		4.45		
San Rafael	M.A.	2	14	2	86.92		9.73	.71	4.35
Control	M.A.	2	7	2	90.71		8.10		
San Rafael	A.A.	1	5	2	63.60		6.50	.67	4.82
Control	A.A.	1	9	2	66.67		6.02		
San Rafael	A.A.	2	5	2	93.00		14.54	.85	8.12
Control	A.A.	2	9	2	100.56		12.97		
Sierra V.	M.A.	1	38	2	58.18		6.59	.39	2.88
Control	M.A.	1	7	2	59.86		4.45		
Sierra V.	M.A.	2	38	2	87.00		12.98	.51	4.27
Control	M.A.	2	7	2	90.71		8.10		

TABLE XII: EXPERIMENTAL AND CONTROL GROUP DIFFERENCES IN ENGLISH VOCABULARY BY ETHNIC GROUPS AND BETWEEN ETHNIC GROUPS, USING THE PEABODY PICTURE VOCABULARY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
						Pre-	Post		
X	M.A.	1	60	2	59.17		5.97	.08	1.17
C	M.A.	1	7	2	59.86		4.45		
X	M.A.	2	60	2	87.03		11.73	.63	4.23
C	M.A.	2	7	2	90.71		8.10		
X	A.A.	1	8	2	67.13		8.13	.01	.68
C	A.A.	1	9	2	66.67		6.02		
X	A.A.	2	8	2	97.75		13.89	.16	2.87
C	A.A.	2	9	2	100.56		12.97		
X	A.I.	1	11	2	59.82		3.64	.00	.07
C	M.A.	1	7	2	59.86		4.45		
X	A.I.	2	11	2	86.09		10.63	.85	5.37
C	M.A.	2	7	2	90.71		8.10		
X	M.A.	1	60	2	59.17		5.97	11.10**	12.70
C	A.A.	1	9	2	66.67		6.02		
X	M.A.	2	60	2	87.03		11.73	9.81**	15.50
C	A.A.	2	9	2	100.56		12.97		
X	A.A.	1	8	2	67.13		8.13	2.83	10.80
C	M.A.	1	7	2	59.86		4.45		
X	A.A.	2	8	2	97.75		13.89	1.19	7.20
C	M.A.	2	7	2	90.71		8.10		
X	A.I.	1	11	2	59.82		3.64	8.86**	11.45
C	A.A.	1	9	2	66.67		6.02		
X	A.I.	2	11	2	86.09		10.63	6.76*	16.80
C	A.A.	2	9	2	100.56		12.97		

TABLE XIII: EXPERIMENTAL GROUP ACHIEVEMENT IN SCIENCE, MATHEMATICS, LANGUAGE AND SOCIAL SCIENCE CONCEPTS BY ETHNIC CLASSIFICATION, SCHOOL AND GRADE LEVEL, BASED ON THE TEST OF BASIC EXPERIENCES (ENGLISH VERSION)

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Cubero	M.A.	Science	12	1	15.00	19.17	3.24	3.31	8.89**	27.27
		Math.			15.25	21.08	3.68	2.63	18.32**	38.25
		Lang.			16.50	21.50	3.62	2.18	15.42**	30.30
		Soc. Sc.			14.67	20.75	4.48	3.09	13.76**	41.48
Cubero	A.I.	Science	15	1	14.87	19.13	4.41	4.53	6.37*	28.70
		Math.			15.60	18.20	5.26	6.24	1.41	16.67
		Lang.			15.07	20.27	3.04	3.91	15.43**	34.51
		Soc. Sc.			15.33	17.53	4.81	4.18	1.66	14.35
San Rafael	M.A.	Science	27	1	12.70	14.93	5.92	5.68	1.90	17.49
		Math.			17.48	19.33	5.25	5.54	1.53	10.59
		Lang.			15.81	19.48	4.55	5.32	7.13*	23.19
		Soc. Sc.			13.81	18.89	3.65	4.28	21.14**	36.73
San Rafael	A.A.	Science	7	1	13.71	17.43	6.13	8.00	.81	27.08
		Math.			21.43	22.43	2.50	2.06	.57	4.67
		Lang.			19.57	23.00	1.92	2.39	7.51*	17.52
		Soc. Sc.			18.71	22.14	2.43	1.73	7.92*	18.32
Sierra Vista	M.A.	Science	67	1	12.97	15.73	4.05	4.59	13.41**	21.29
		Math.			13.42	18.21	4.40	3.78	45.12**	35.71
		Lang.			15.03	18.49	4.31	4.03	22.76**	23.04
		Soc. Sc.			12.42	16.43	5.78	6.43	14.56**	32.33
Sierra Vista	A.I.	Science	4	1	14.50	13.75	4.15	.43	.09	5.10
		Math.			13.00	16.50	2.24	2.29	3.58	26.90
		Lang.			13.00	18.00	2.55	.71	10.71*	38.40
		Soc. Sc.			15.50	16.25	4.72	2.95	.05	4.80
Sierra Vista	A.A.	Science	9	1	14.11	17.33	4.70	3.02	2.66	22.80
					18.44	20.78	5.34	3.85	1.00	12.60
					16.89	21.44	3.41	3.20	7.58*	26.90
					18.00	20.33	3.40	3.68	1.73	12.90

TABLE XIV: ETHNIC EXPERIMENTAL GROUP DIFFERENCES BY GRADE LEVEL ACROSS ALL SCHOOLS IN MATHEMATICS, LANGUAGE AND SOCIAL SCIENCE CONCEPTS, BASED ON THE TEST OF BASIC EXPERIENCES

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Cubero	M.A.	Science	12	1	15.75	18.17	3.79	3.50	.62	NA
	A.I.	Science	15	1	14.87	19.33	4.42	4.53		
	M.A.	Math.	12	1	17.50	18.31	5.18	3.14	.03	NA
	A.I.	Math.	15	1	15.60	18.62	5.27	6.25		
	M.A.	Lang.	12	1	17.58	20.12	4.35	2.73	.07	NA
	A.I.	Lang.	15	1	15.07	20.15	3.05	3.91		
	M.A.	Soc. Sc.	12	1	16.25	19.00	4.48	4.88	.58	NA
	A.I.	Soc. Sc.	15	1	15.34	17.67	4.82	4.18		
San Rafael	M.A.	Science	27	1	12.70	15.12	5.92	5.68	1.38	NA
	A.A.	Science	7	1	13.71	16.70	6.14	8.00		
	M.A.	Math.	27	1	17.48	19.82	5.26	5.54	.15	NA
	A.A.	Math.	7	1	21.43	20.57	2.50	2.06		
	M.A.	Lang.	27	1	15.81	20.08	4.55	5.33	.13	NA
	A.A.	Lang.	7	1	19.57	20.70	2.00	2.39		
	M.A.	Soc. Sc.	27	1	13.81	19.38	3.66	4.28	.23	NA
	A.A.	Soc. Sc.	7	1	18.71	20.25	2.44	1.73		
Sierra Vista	M.A.	Science	67	1	12.97	15.80	4.06	4.60	3.40	NA
	A.I.	Science	9	1	14.50	12.65	4.16	.44		
	M.A.	Math.	67	1	13.42	18.20	4.40	3.78	.92	NA
	A.I.	Math.	9	1	13.00	16.71	2.24	2.30		
	M.A.	Lang.	67	1	15.03	18.44	4.31	4.03	0.08	NA
	A.I.	Lang.	9	1	13.00	18.93	2.55	0.71		
	M.A.	Soc. Sc.	67	1	12.42	16.59	5.78	6.31	2.55	NA
	A.I.	Soc. Sc.	9	1	15.50	13.66	4.72	2.95		
Sierra Vista	M.A.	Science	67	1	12.97	15.83	4.06	4.60	0.42	NA
	A.A.	Science	9	1	14.11	16.56	4.71	3.02		
	M.A.	Math	67	1	13.42	18.54	4.40	3.78	0.34	NA
	A.A.	Math	9	1	18.44	18.33	5.35	3.86		
	M.A.	Lang.	67	1	15.03	18.61	4.31	4.03	2.74	NA
	A.A.	Lang.	9	1	16.89	20.58	3.42	3.21		
	M.A.	Soc. Sc.	67	1	12.42	17.03	5.78	6.31	0.81	NA
	A.A.	Soc. Sc.	9	1	18.00	15.87	3.40	3.69		
Sierra Vista	A.I	Science	4	1	14.50	13.65	4.16	0.44	7.95*	
	A.A.	Science	9	1	14.11	17.38	4.71	3.02		
	A.I.	Math	4	1	13.00	18.50	2.24	2.29	0.53	NA
	A.A.	Math	9	1	18.44	19.89	5.34	3.86		
	A.I.	Lang.	4	1	13.00	19.65	2.55	0.71	0.52	NA
	A.A.	Lang.	9	1	16.89	20.71	3.42	3.21		
	A.I.	Soc. Sc.	4	1	15.50	17.03	4.72	2.95	1.89	NA
	A.A.	Soc. Sc.	9	1	18.00	19.99	3.40	3.69		

TABLE XV: ETHNIC EXPERIMENTAL GROUP DIFFERENCES BY GRADE LEVEL ACROSS ALL SCHOOLS IN SCIENCE, MATHEMATICS, LANGUAGE AND SOCIAL SCIENCE, BASED ON THE TEST OF BASIC EXPERIENCES

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
X	M.A.	Science	108	1	13.10	16.00	4.70	4.84	1.21	NA
X	A.I.	Science	19	1	14.79	16.94	4.36	4.59		
X	M.A.	Math.	108	1	14.81	18.55	5.13	4.26	.75	NA
X	A.I.	Math	19	1	15.05	17.74	4.90	5.69		
X	M.A.	Lang.	108	1	15.47	18.93	4.45	4.30	1.88	NA
X	A.I.	Lang.	19	1	14.63	20.16	3.06	3.61		
X	M.A.	Soc. Sc.	108	1	13.14	17.58	5.31	5.79	2.98	NA
X	A.I.	Soc. Sc.	19	1	15.37	15.85	4.79	3.98		
X	M.A.	Science	108	1	13.10	15.96	4.70	4.84	.94	NA
X	A.A.	Science	17	1	14.53	16.82	5.73	5.80		
X	M.A.	Math	108	1	14.81	18.82	5.12	4.26	.93	NA
X	A.A.	Math	17	1	19.65	19.78	4.46	3.25		
X	M.A.	Lang.	108	1	15.47	19.22	4.45	4.30	3.37	NA
X	A.A.	Lang.	17	1	18.41	20.92	3.36	2.97		
X	M.A.	Soc. Sc.	108	1	13.14	17.89	5.31	5.79	.00	NA
X	A.A.	Soc. Sc.	17	1	18.35	17.82	2.95	3.16		
X	A.A.	Science	19	1	14.79	17.91	4.36	4.59	.00	NA
X	A.I.	Science	17	1	14.53	17.87	5.73	5.80		
X	A.A.	Math	19	1	15.05	19.48	4.90	5.69	.08	NA
X	A.I.	Math	17	1	19.65	19.82	4.46	3.25		
X	A.A.	Lang.	19	1	14.63	20.70	3.06	3.01	.25	NA
X	A.I.	Lang.	17	1	18.41	21128	3.36	2.97		
X	A.A.	Soc. Sc.	19	1	15.37	17.97	4.79	3.98	5.40	NA
X	A.I.	Soc. Sc.	17	1	18.35	20.57	2.95	3.16		

XVI: EXPERIMENTAL AND CONTROL GROUP DIFFERENCES BY ETHNIC GROUP, SCHOOL AND GRADE LEVEL IN SCIENCE, MATHEMATICS, LANGUAGE, AND SOCIAL SCIENCE CONCEPTS, BASED ON THE TEST OF BASIC EXPERIENCES

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Cubero	M.A.	Science	12	1	19.17		3.31	6.55*	19.78
Control	M.A.	Science	8	1	15.38		2.69		
Cubero	M.A.	Math.	12	1	21.08		2.63	6.21*	15.81
Control	M.A.	Math.	8	1	17.75		3.00		
Cubero	M.A.	Lang.	12	1	21.50		2.18	4.86*	9.30
Control	M.A.	Lang.	8	1	19.50		1.32		
Cubero	M.A.	Soc. Sc.	12	1	20.75		3.09	2.08	11.45
Control	M.A.	Soc. Sc.	8	1	18.38		3.87		
San Rafael	M.A.	Science	27	1	14.93		5.68	.04	3.01
Control	M.A.	Science	8	1	15.38		2.69		
San Rafael	M.A.	Math.	27	1	19.33		5.54	.56	8.19
Control	M.A.	Math.	8	1	17.75		2.99		
San Rafael	M.A.	Lang.	27	1	19.48		5.32	.00	.10
Control	M.A.	Lang.	8	1	19.50		1.32		
San Rafael	M.A.	Soc. Sc.	27	1	18.89		4.28	.08	2.72
Control	M.A.	Soc. Sc.	8	1	18.38		3.87		
San Rafael	A.A.	Science	7	1	17.43		8.00	.19	9.97
Control	A.A.	Science	6	1	19.17		3.93		
San Rafael	A.A.	Math.	7	1	22.43		2.06	1.45	6.37
Control	A.A.	Math.	6	1	21.00		1.83		
San Rafael	A.A.	Lang.	7	1	23.00		2.39	.09	2.17
Control	A.A.	Lang.	6	1	22.50		2.87		
San Rafael	A.A.	Soc. Sc.	7	1	22.14		1.73	.00	.65
Control	A.A.	Soc. Sc.	6	1	22.00		3.00		
Sierra Vista	M.A.	Science	67	1	15.73		4.59	.04	2.27
Control	M.A.	Science	8	1	15.38		2.69		
Sierra Vista	M.A	Math.	67	1	18.21		3.78	.10	2.52
Control	M.A.	Math.	8	1	17.75		2.99		
Sierra Vista	M.A.	Lang.	67	1	18.49		4.03	.48	5.45
Control	M.A.	Lang.	8	1	19.50		1.32		
Sierra Vista	M.A.	Soc. Sc.	67	1	16.43		6.30	.70	11.82
Control	M.A.	Soc. Sc.	8	1	18.38		3.87		
Sierra Vista	A.A.	Science	9	1	17.33		3.02	.89	10.58
Control	A.A.	Science	6	1	19.17		3.93		
Sierra Vista	A.A.	Math.	9	1	20.77		3.85	.01	1.07
Control	A.A.	Math.	6	1	21.00		1.83		
Sierra Vista	A.A.	Lang.	9	1	21.44		3.20	.36	4.92
Control	A.A.	Lang.	6	1	22.50		2.87		
Sierra Vista	A.A.	Soc. Sc.	9	1	20.33		3.68	.73	8.20
Control	A.A.	Soc. Sc.	6	1	22.00		3.00		

TABLE XVII: FIRST GRADE EXPERIMENTAL AND CONTROL GROUP DIFFERENCES BY ETHNIC GROUPS AND BETWEEN ETHNIC GROUPS IN SCIENCE, MATHEMATICS, LANGUAGE AND SOCIAL BASED ON THE TEST OF BASIC EXPERIENCES

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	Std. Dev.		F Ratio	% Diff.
						Pre-	Post		
X	M.A.	Science	106	1	15.92		4.92	.92	3.39
C	M.A.	Science	8	1	15.37		2.70		
X	M.A.	Math.	106	1	18.82		4.30	.46	5.69
C	M.A.	Math.	8	1	17.75		2.99		
X	M.A.	Lang.	106	1	19.08		4.35	.07	2.17
C	M.A.	Lang.	8	1	19.50		1.32		
X	M.A.	Soc. Sc.	106	1	17.55		5.77	.15	4.72
C	M.A.	Soc. Sc.	8	1	18.38		3.87		
X	A.A.	Science	16	1	17.38		5.75	.44	10.31
C	A.A.	Science	6	1	19.17		3.93		
X	A.A.	Math.	16	1	21.50		3.30	.11	2.33
C	A.A.	Math.	6	1	21.00		1.83		
X	A.A.	Lang.	16	1	22.13		2.98	.06	1.69
C	A.A.	Lang.	6	1	22.50		2.87		
X	A.A.	Soc. Sc.	16	1	21.13		3.12	.31	4.15
C	A.A.	Soc. Sc.	6	1	22.00		3.00		
X	A.I.	Science	19	1	18.00		4.59	2.11	14.58
C	M.A.	Science	8	1	15.38		2.69		
X	A.I.	Math.	19	1	17.84		5.69	.00	0.52
C	M.A.	Math.	8	1	17.75		2.99		
X	A.I.	Lang.	19	1	19.79		3.61	.04	1.46
C.	M.A.	Lang.	8	1	19.50		1.32		
X	A.I.	Soc. Sc.	19	1	17.26		3.98	.41	6.44
C	M.A.	Soc. Sc.	8	1	18.38		3.87		
X	M.A.	Science	106	1	15.92		4.92	2.47	20.40
C	A.A.	Science	6	1	19.17		3.93		
X	M.A.	Math.	106	1	18.82		4.30	1.49	11.60
C	A.A.	Math	6	1	21.00		1.83		
X	M.A.	Lang.	106	1	19.08		4.35	3.54	17.90
C	A.A.	Lang.	6	1	22.50		2.87		
X	M.A.	Soc. Sc.	106	1	17.55		5.77	3.45	25.40
C	A.A.	Soc. Sc.	6	1	22.00		3.00		
X	A.A.	Science	16	1	17.36		5.75	.79	11.60
C	M.A.	Science	8	1	15.38		2.69		
X	A.A.	Math.	16	1	21.50		3.30	6.72*	17.40
C	M.A.	Math.	8	1	17.75		2.99		
X	A.A.	Lang.	16	1	22.13		2.98	5.19*	11.90
C	M.A.	Lang.	8	1	19.50		1.32		
X	A.A.	Soc. Sc.	16	1	21.13		3.12	3.21	13.10
C	M.A.	Soc. Sc.	8	1	18.38		3.87		

TABLE XVII: (Continued)

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
X	A.I.	Science	19	1	18.00		4.59	.28	6.50
C	A.A.	Science	6	1	19.17		3.93		
X	A.I.	Math.	19	1	17.84		5.69	1.64	17.70
C	A.A.	Math.	6	1	21.00		1.83		
X	A.I.	Lang.	19	1	19.79		3.61	2.59	13.70
C	A.A.	Lang.	6	1	22.50		2.87		
X	A.I.	Soc. Sc.	19	1	17.26		3.98	6.61*	27.50
C	A.A.	Soc. Sc.	6	1	22.00		3.00		

TABLE XVIII: EXPERIMENTAL GROUP GAINS IN READING, MATHEMATICS AND LANGUAGE BY ETHNIC GROUP, SCHOOL AND GRADE LEVEL, BASED ON THE SRA ACHIEVEMENT TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
Cubero	M.A.	Reading	6	3	18.50	29.00	5.85	9.97	4.12	56.76
		Math.	6	3	27.17	35.00	9.67	11.72	1.32	28.83
		Lang.	6	3	56.00	59.50	11.47	19.77	.11	6.25
	A.I.	Reading	11	3	30.09	41.64	10.07	11.20	5.87*	38.37
		Math.	11	3	33.00	44.91	4.94	9.77	11.82*	36.09
		Lang.	11	3	62.00	73.91	11.81	14.51	4.03	19.21
San Mateo	M.A.	Reading	4	2	24.25	35.75	7.12	9.31	2.88	47.42
		Math.	4	2	20.00	39.50	6.04	14.43	4.66	97.50
		Lang.	4	2	48.50	64.00	2.96	10.98	5.57	31.90
	M.A.	Reading	5	3	26.40	30.60	2.87	7.58	1.07	15.90
		Math.	5	3	30.80	61.40	6.49	11.39	21.77*	99.35
		Lang.	5	3	53.40	60.60	11.69	9.54	0.91	13.48
San Rafael	M.A.	Reading	11	2	21.00	32.09	2.00	9.49	13.07*	52.80
		Math.	11	2	24.27	38.36	3.79	7.11	30.55*	58.00
		Lang.	11	2	47.91	59.09	6.63	9.22	9.70*	23.00
	A.A.	Reading	4	2	25.00	43.00	5.96	10.09	7.06*	72.90
		Math.	4	2	28.75	53.50	2.49	15.82	7.11*	86.00
		Lang.	4	2	50.00	68.75	2.12	11.95	7.16*	37.50
Seboyeta	M.A.	Reading	7	3	26.14	31.29	7.97	11.18	0.84	19.60
		Math.	7	3	32.86	37.43	9.39	14.63	0.41	13.90
		Lang.	7	3	51.43	62.29	14.88	19.89	1.14	21.10
	A.I.	Reading	7	3	27.86	40.57	13.39	14.39	2.51	45.60
		Math.	7	3	40.29	50.57	14.18	17.60	1.24	25.50
		Lang.	7	3	57.00	73.14	16.91	17.37	2.66	28.30
Sierra Vista	M.A.	Reading	31	3	28.94	34.42	9.89	14.42	2.95*	18.90
		Math.	31	3	35.90	47.68	13.80	17.80	8.19*	32.70
		Lang.	31	3	59.10	60.97	12.49	17.44	0.22	3.10

TABLE X

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	Std. Dev.		F Ratio	% Diff.
							Pre-	Post		
Cubero	M.A.	Reading	6	3	18.50	29.00	5.85	9.97	9.97	56.76
	M.A.	Math.	6	3	27.17	35.00	9.97	11.72	1.32	28.80
	M.A.	Lang.	6	3	56.00	59.50	11.47	19.77	0.11	6.25
Cubero	A.I	Reading	11	3	30.09	41.64	10.07	11.20	5.87	*38.37
	A.I.	Math.	11	3	33.00	44.91	4.91	9.77	11.82	*36.09
	A.I.	Lang.	11	3	62.00	73.91	11.81	14.51	4.03	19.21
San Mateo	M.A.	Reading	4	2	24.25	35.75	7.12	9.31	2.88	47.42
	M.A.	Math.	4	2	20.00	39.50	6.04	14.43	4.61	97.50
	M.A.	Lang.	4	2	48.50	64.00	2.96	10.98	5.57	31.96
San Mateo	M.A.	Reading	5	3	26.40	30.60	2.87	7.58	1.07	15.91
	M.A.	Math.	5	3	30.80	61.40	6.49	11.39	21.77	*99.35
	M.A.	Lang.	5	3	53.40	60.60	11.69	9.54	0.91	13.48
San Rafael	M.A.	Reading	11	2	21.00	32.09	2.00	9.49	13.07	*52.81
	M.A.	Math.	11	2	24.27	38.36	3.79	7.11	30.55	*58.05
	M.A.	Lang.	11	2	47.91	59.09	6.63	9.22	9.70	*23.34
San Rafael	A.A.	Reading	4	2	25.00	43.00	5.96	10.09	7.06	*72.00
	A.A.	Math.	4	2	28.75	53.50	2.49	15.82	7.16	*86.09
	A.A.	Lang.	4	2	50.00	68.75	2.12	11.95	7.16	*37.50
Seboyeta	M.A.	Reading	7	3	26.14	31.29	7.97	11.18	0.84	19.67
	M.A.	Math.	7	3	32.86	37.43	9.39	14.63	0.41	13.91
	M.A.	Lang.	7	3	51.43	62.29	14.88	19.89	1.14	21.11
Seboyeta	A.A.	Reading	7	3	27.86	40.57	13.39	14.39	2.51	45.64
	A.A.	Math.	7	3	40.29	50.57	14.18	17.60	1.24	25.53
	A.A.	Lang.	7	3	57.00	73.14	16.91	17.37	2.66	28.32
Sierra Vista	M.A.	Reading	31	3	28.94	34.42	9.89	14.42	2.95	*18.95
	M.A.	Math	31	3	35.90	47.68	13.80	17.80	8.19	*32.79
	M.A.	Lang.	31	3	59.10	60.97	12.49	17.44	0.22	3.17

TABLE XIX: EXPERIMENTAL AND CONTROL GROUP DIFFERENCES IN READING, MATHEMATICS AND LANGUAGE BY ETHNIC GROUP, SCHOOL AND GRADE LEVEL, BASED ON THE SRA ACHIEVEMENT TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
San Mateo	M.A.	Reading	4	2		35.75		9.31	.54	10.89
Control	M.A.	Reading	7	2		31.86		6.38		
	M.A.	Math.	4	2		39.50		14.43	.00	.54
	M.A.	Math.	7	2		39.29		12.09		
	M.A.	Lang.	4	2		64.00		10.98	.66	9.15
	M.A.	Lang.	7	2		58.14		10.05		
San Rafael	M.A.	Reading	11	2		32.09		9.49	.00	.73
Control	M.A.	Reading	7	2		31.86		6.38		
	M.A.	Math.	11	2		38.36		7.11	.03	2.40
	M.A.	Math.	7	2		39.29		12.09		
	M.A.	Lang.	11	2		59.09		9.21	.03	1.60
	M.A.	Lang.	7	2		58.14		10.04		
San Rafael	A.A.	Reading	4	2		43.00		10.10	1.13	18.60
Control	A.A.	Reading	8	2		35.00		11.69		
	A.A.	Math.	4	2		53.50		15.82	1.90	25.23
	A.A.	Math.	8	2		40.00		13.93		
	A.A.	Lang.	4	2		68.75		11.95	.44	10.00
	A.A.	Lang.	8	2		61.88		16.84		
Cubero	M.A.	Reading	6	3		29.00		9.97	17.76*	65.52
Control	M.A.	Reading	7	3		48.00		4.24		
	M.A.	Math.	6	3		35.00		11.72	7.14*	57.14
	M.A.	Math.	7	3		55.00		12.91		
	M.A.	Lang.	6	3		59.50		19.77	9.98*	45.98
	M.A.	Lang.	7	3		86.86		6.75		
San Mateo	M.A.	Reading	5	3		30.60		7.58	21.37*	56.86
Control	M.A.	Reading	7	3		48.00		4.24		
	M.A.	Math.	5	3		61.40		11.39	.65	10.42
	M.A.	Math.	7	3		55.00		12.91		
	M.A.	Lang.	5	3		60.60		9.54	25.97*	43.33
	M.A.	Lang.	7	3		86.86		6.75		
Seboyeta	M.A.	Reading	7	3		31.29		11.18	11.71*	53.42
	M.A.	Reading	7	3		48.00		4.24		
	M.A.	Math.	7	3		37.43		14.63	4.86*	46.95
	M.A.	Math.	7	3		55.00		12.91		
	M.A.	Lang.	7	3		62.29		19.89	8.21*	39.45
	M.A.	Lang.	7	3		86.86		6.75		
Sierra Vista	M.A.	Reading	31	3		34.42		14.42	5.76*	39.46
Control	M.A.	Reading	7	3		48.00		4.24		
	M.A.	Math.	31	3		47.68		17.80	1.00	15.36
	M.A.	Math.	7	3		55.00		12.91		
	M.A.	Lang	31	3		60.97		17.80	14.13*	42.46
	M.A.	Lang.	7	3		86.86		6.75		

TABLE XX: EXPERIMENTAL AND CONTROL GROUP DIFFERENCES IN READING, MATHAMATICS AND LANGUAGE BY ETHNIC GROUP AND GRADE LEVEL ACROSS ALL SCHOOLS.

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
X	M.A.	Reading	15	2	33.07	9.58	not provided		.08	3.66
C	M.A.	Reading	7	2	31.86	6.38				
X	M.A.	Math.	15	2	38.67	9.64			.01	1.60
C	M.A.	Math.	7	2	39.29	12.09				
X	M.A.	Lang.	15	2	60.40	9.96			.22	3.74
C	M.A.	Lang	7	2	58.14	10.05				
X	A.A.	Reading	4	2	43.00	10.10			1.13	18.60
C	A.A.	Reading	8	2	35.00	11.69				
X	A.A.	Math.	4	2	53.50	15.82			1.90	25.23
C	A.A.	Math.	8	2	40.00	13.93				
X	A.A.	Lang.	4	2	68.75	11.95			.44	10.00
C	A.A.	Lang.	8	2	61.88	16.84				
X	M.A.	Reading	49	3	32.92	13.10			8.80	45.82
C	M.A.	Reading	7	3	48.00	4.24				
X	M.A.	Math.	49	3	46.06	17.68			1.60	19.41
C	M.A.	Math.	7	3	55.00	12.91				
X	M.A.	Lang.	49	3	60.94	17.51			14.48	42.53
C	M.A.	Lang.	7	3	86.86	6.75				
X	A.A.	Reading	4	3	37.50	9.01			1.30	20.38
C	A.A.	Reading	7	3	45.14	10.02				
X	A.A.	Math.	4	3	42.50	14.91			1.06	29.75
C	A.A.	Math.	7	3	55.14	19.06				
X	A.A.	Lang.	4	3	71.50	17.85			.00	0.90
C	A.A.	Lang.	7	3	70.86	17.92				

TABLE XXI: EXPERIMENTAL AND CONTROL GROUP DIFFERENCES IN READING, MATHAMATICS AND LANGUAGE BETWEEN ETHNIC GROUPS IN GRADE LEVELS TWO AND THREE ACROSS ALL SCHOOLS, BASED ON THE SRA ACHIEVEMENT TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
X	M.A.	Reading	49	3	39.92	13.10	not		5.42*	37.14
C	A.A.	Reading	7	3	45.14	10.02				
X	M.A.	Math.	49	3	46.06	17.68	provided		1.52	19.72
C	A.A.	Math.	7	3	55.14	19.06				
X	M.A.	Lang.	49	3	60.94	17.51			1.88	16.28
C	A.A.	Lang.	7	3	70.86	17.92				
X	A.A.	Reading	4	3	37.50	9.01			5.60*	28.00
C	M.A.	Reading	7	3	48.00	4.24				
X	A.A.	Math.	4	3	42.50	14.91			1.74	29.41
C	M.A.	Math.	7	3	55.00	12.91				
X	A.A.	Lang.	4	3	71.50	17.85			3.38	21.48
C	M.A.	Lang.	7	3	86.86	6.75				
X	A.I.	Reading	20	3	41.85	12.08			.38	7.87
C	A.A.	Reading	7	3	45.14	10.02				
X	A.I.	Math.	20	3	47.30	13.70			1.26	16.58
C	A.A.	Math.	7	3	55.14	19.06				
X	A.I.	Lang.	20	3	75.00	15.49			.31	5.52
C	A.A.	Lang.	7	3	70.86	17.92				
X	A.I.	Reading	20	3	41.85	12.08			1.61	14.70
C	M.A.	Reading	7	3	48.00	4.24				
X	A.I.	Math.	20	3	47.30	13.70			1.56	16.28
C	M.A.	Math.	7	3	55.00	12.91				
X	A.I.	Lang.	20	3	75.00	15.49			3.56	15.81
C	M.A.	Lang.	7	3	86.86	6.75				
X	M.A.	Reading	15	2	33.07	9.58			.16	5.85
C	A.A.	Reading	8	2	35.00	11.70				
X	M.A.	Math.	15	2	38.67	9.64			.06	3.45
C	A.A.	Math.	8	2	40.00	13.93				
X	M.A.	Lang.	15	2	60.40	9.96			.06	2.44
C	A.A.	Lang.	8	2	61.88	16.85				
X	A.A.	Reading	4	2	43.00	10.10			4.10	25.91
C	M.A.	Reading	7	2	31.86	6.38				
X	A.A.	Math.	4	2	53.50	15.82			2.28	26.57
C	M.A.	Math.	7	2	39.29	12.09				
X	A.A.	Lang.	4	2	68.75	11.95			2.01	15.43
C	M.A.	Math.	7	2	58.14	10.05				

TABLE XXII: EXPERIMENTAL GROUP CHANGES IN MULTICULTURAL PERCEPTIONS BY ETHNIC GROUPS, SCHOOL AND GRADE LEVEL, BASED ON THE SWCEL CULTURAL SENSITIVITY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
Cubero	A.I.	1	5	1	409.00	409.00	180.12	35.13	0.00	0.00
		2	5	1	393.00	335.00	179.79	90.28	0.33	14.76
		3	5	1	393.00	364.00	168.72	81.14	0.09	7.38
		4	5	1	368.00	372.00	188.59	88.46	0.00	1.09
		5	5	1	404.00	311.00	134.37	86.16	1.35	23.02
		6	5	1	369.00	291.00	190.80	47.80	.63	21.14
		7	5	1	395.00	358.00	181.60	84.12	0.13	9.37
		8	5	1	416.00	297.00	175.60	62.42	1.63	28.61
		9	5	1	380.00	333.00	174.27	18.14	0.19	12.37
Cubero	M.A.	1	3	2	483.33	428.33	18.86	58.64	1.59	11.38
		2	3	2	406.67	438.33	74.09	43.65	0.27	7.79
		3	3	2	300.00	425.00	122.95	49.67	1.77	41.67
		4	3	2	450.00	411.67	21.21	44.97	1.18	8.52
		5	3	2	383.33	423.33	91.77	57.78	0.27	10.43
		6	3	2	286.67	421.67	139.12	59.07	1.59	47.09
		7	3	2	366.67	426.67	44.97	41.70	1.91	16.31
		8	3	2	258.33	415.00	55.43	67.45	6.44	60.65
		9	3	2	240.00	423.33	177.81	59.49	1.91	76.38
Cubero	A.I.	1	8	2	478.75	400.00	48.85	70.00	5.95*	16.45
		2	8	2	348.38	360.63	82.71	106.67	0.21	6.18
		3	8	2	380.63	390.00	98.69	96.86	0.03	2.46
		4	8	2	440.63	366.88	73.46	104.76	2.23	16.74
		5	8	2	392.50	310.63	105.89	58.10	1.29	20.86
		6	8	2	387.50	375.63	134.02	96.90	0.03	3.06
		7	8	2	426.25	383.75	98.51	93.06	0.68	9.98
		8	8	2	386.25	383.13	94.63	96.53	0.00	0.81
		9	8	2	385.00	356.88	102.50	135.92	0.19	7.31
Cubero	M.A.	1	3	3	426.67	501.67	117.85	8.50	0.80	17.58
		2	3	3	436.67	466.67	103.71	33.00	0.15	6.87
		3	3	3	440.00	485.00	98.99	17.80	0.40	10.28
		4	3	3	443.33	491.67	108.42	16.50	0.56	13.46
		5	3	3	494.33	505.00	23.57	4.03	0.47	2.36
		6	3	3	401.67	458.33	153.21	40.89	0.21	12.86
		7	3	3	466.67	480.00	61.28	32.40	0.07	2.86
		8	3	3	450.00	493.33	84.85	12.47	0.51	9.63
		9	3	3	453.33	480.00	80.14	38.14	0.17	5.88

TABLE XXII: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Cubero	A.I.	1	7	3	468.57	444.29	39.71	70.78	0.53	5.18
		2	7	3	437.86	421.43	59.93	90.07	0.13	3.75
		3	7	3	443.57	424.29	49.76	60.85	0.36	4.35
		4	7	3	440.71	425.71	77.85	71.08	0.12	3.40
		5	7	3	442.86	449.29	72.50	65.16	0.02	1.45
		6	7	3	372.14	360.71	114.29	125.34	0.02	3.07
		7	7	3	442.86	452.86	46.05	58.55	0.12	2.43
		8	7	3	386.43	372.86	115.60	118.14	0.04	3.51
		9	7	3	440.71	475.00	61.15	31.40	1.49	7.78
San Rafael	M.A.	1	7	1	265.71	372.14	136.13	114.82	2.14	40.05
		2	7	1	282.14	397.86	142.55	75.21	3.09	41.01
		3	7	1	287.86	385.00	119.43	89.68	2.53	33.75
		4	7	1	263.57	381.43	149.52	95.68	2.64	44.72
		5	7	1	297.14	364.29	158.04	119.95	0.68	22.60
		6	7	1	282.86	365.71	134.40	90.96	1.56	29.29
		7	7	1	275.71	407.86	161.87	74.59	3.29	47.93
		8	7	1	277.14	365.71	148.56	102.41	1.44	31.96
		9	7	1	283.57	377.86	158.36	103.26	1.49	33.25
San Rafael	A.A.	1	4	1	363.75	472.50	75.20	18.20	5.92	29.90
		2	4	1	345.00	420.00	46.10	56.24	3.19	21.14
		3	4	1	330.00	448.75	99.18	17.81	4.16	35.98
		4	4	1	353.75	430.00	90.51	30.82	1.90	21.55
		5	4	1	382.50	441.25	60.88	37.31	2.03	15.36
		6	4	1	347.50	453.75	55.96	30.08	8.89*	30.58
		7	4	1	365.00	461.25	94.54	25.34	2.90	26.37
		8	4	1	358.75	411.25	93.77	39.43	0.79	14.64
		9	4	1	362.50	486.25	83.18	4.15	6.62*	34.14
San Rafael	M.A.	1	15	2	408.00	428.33	88.58	96.60	0.33	4.98
		2	15	2	409.00	385.67	54.04	92.64	0.66	5.70
		3	15	2	373.67	396.67	75.80	105.79	0.43	6.16
		4	15	2	377.33	398.33	66.55	109.77	0.37	5.57
		5	15	2	453.33	430.20	49.99	67.37	1.06	5.10
		6	15	2	339.67	339.00	67.54	105.69	0.00	0.20
		7	15	2	419.67	429.33	66.97	71.50	0.13	2.30
		8	15	2	373.00	347.00	89.18	96.61	0.54	6.98
		9	15	2	414.00	427.33	70.27	67.70	0.25	3.22

TABLE XXII: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
San Rafael	A.A.	1	5	2	340.00	458.00	112.74	56.62	3.49	34.71
		2	5	2	369.00	321.00	93.99	103.17	0.47	13.01
		3	5	2	321.00	371.00	99.12	105.35	0.30	15.58
		4	5	2	264.00	349.00	95.36	112.31	1.33	32.20
		5	5	2	401.00	440.00	76.71	86.43	0.45	9.73
		6	5	2	261.00	334.00	63.20	94.25	1.65	27.97
		7	5	2	365.00	405.00	60.66	73.46	0.70	10.96
		8	5	2	288.00	363.00	106.28	58.28	1.52	26.04
		9	5	2	381.00	403.00	58.60	84.30	0.18	5.58
Sierra Vista	M.A.	1	17	1	407.06	415.53	114.89	70.64	0.03	1.59
		2	17	1	423.24	397.06	102.20	103.20	0.51	6.18
		3	17	1	386.47	403.53	140.71	72.05	0.18	4.41
		4	17	1	409.41	407.65	124.56	80.08	0.00	0.43
		5	17	1	415.59	372.35	125.68	111.88	1.05	10.40
		6	17	1	379.41	374.47	143.26	104.24	0.01	1.30
		7	17	1	387.06	380.29	134.92	101.52	0.02	1.75
		8	17	1	406.18	375.00	121.13	116.56	0.53	7.68
		9	17	1	399.12	380.00	127.22	119.45	0.19	4.79
Sierra Vista	A.A.	1	4	1	437.50	416.25	87.79	20.12	0.16	0.16
		2	4	1	428.75	336.25	81.12	65.23	0.15	9.91
		3	4	1	452.50	426.25	88.42	26.55	0.24	5.80
		4	4	1	446.25	355.00	101.94	81.01	1.47	20.45
		5	4	1	451.25	400.00	75.69	36.40	1.11	11.36
		6	4	1	451.25	342.50	82.79	76.61	2.78	24.10
		7	4	1	441.25	408.75	83.69	11.39	0.44	7.37
		8	4	1	445.00	358.75	81.70	76.43	1.78	19.38
		9	4	1	411.25	408.75	83.84	20.73	0.00	0.61
Sierra Vista	M.A.	1	21	2	376.90	442.86	104.09	59.67	6.04*	17.50
		2	21	2	393.10	423.81	99.04	71.96	1.28	7.81
		3	21	2	378.33	414.52	108.36	94.38	1.26	9.57
		4	21	2	380.48	420.24	118.74	72.89	1.62	10.45
		5	21	2	425.00	457.14	76.97	78.34	1.72	7.56
		6	21	2	385.24	407.38	106.21	85.38	0.52	5.75
		7	21	2	378.10	433.10	125.65	79.02	2.74	14.55
		8	21	2	374.29	410.19	121.55	86.52	0.65	7.19
		9	21	2	392.86	446.90	103.57	51.07	4.38*	13.76

TABLE XXII: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Sierra Vista	M.A.	1	11	3	418.64	402.73	98.05	75.21	0.16	3.80
		2	11	3	499.55	407.73	107.14	79.32	0.00	0.44
		3	11	3	374.09	408.66	108.89	74.78	0.68	9.23
		4	11	3	421.36	390.91	102.34	78.07	0.55	7.23
		5	11	3	425.00	430.91	110.31	71.12	0.02	1.39
		6	11	3	381.36	357.73	114.40	108.53	0.22	6.20
		7	11	3	428.64	400.91	94.61	53.97	0.64	6.47
		8	11	3	384.55	348.64	99.76	95.35	0.67	9.34
		9	11	3	423.18	400.45	96.61	89.23	0.29	5.37

TABLE XXIII: EXPERIMENTAL GROUP DIFFERENCES IN MULTICULTURAL PERCEPTIONS BY GRADE LEVEL ACROSS ALL SCHOOLS, BASED ON THE SWCEL CULTURAL SENSITIVITY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
							Pre-	Post		
X	M.A.	1	26	1	371.92	395.32	134.73	88.33	.03	NA
X	A.I.	1	5	1	409.00	402.34	180.12	35.13		
X	M.A.	2	26	1	385.96	389.02	129.38	97.21	1.30	
X	A.I.	2	5	1	393.00	334.09	179.79	90.28		
X	M.A.	3	26	1	358.08	389.14	136.62	82.97	.57	
X	A.I.	3	5	1	393.00	359.47	168.72	81.14		
X	M.A.	4	26	1	369.42	389.59	142.47	90.58	.15	
X	A.I.	4	5	1	368.00	372.13	188.59	88.96		
X	M.A.	5	26	1	385.58	359.50	142.66	117.90	1.06	
X	A.I.	5	5	1	404.00	305.58	134.37	86.16		
X	M.A.	6	26	1	354.42	361.55	143.48	104.24	2.92	
X	A.I.	6	5	1	369.00	287.14	190.80	47.05		
X	M.A.	7	26	1	360.77	382.68	147.90	94.70	.52	
X	A.I.	7	5	1	382.68	351.04	181.60	84.12		
X	M.A.	8	26	1	367.30	366.49	137.25	112.16	2.93	
X	A.I.	8	5	1	416.00	283.25	175.60	62.42		
X	M.A.	9	26	1	369.81	372.44	142.56	113.32	.53	
X	A.I.	9	5	1	366.70	380.00	331.31	174.27		
X	M.A.	1	26	1	371.92	395.84	134.73	88.33	1.97	
X	A.A.	1	8	1	400.63	438.52	89.67	34.05		
X	M.A.	2	26	1	385.96	388.90	129.38	97.22	.150	
X	A.A.	2	8	1	386.88	402.95	78.14	63.20		
X	M.A.	3	26	1	358.08	388.27	389.31	136.63	2.17	
X	A.A.	3	8	1	391.25	434.11	112.16	25.25		
X	M.A.	4	26	1	369.42	390.62	142.48	90.59	0.001	
X	A.A.	4	8	1	400.00	389.24	106.92	71.86		
X	M.A.	5	26	1	358.58	361.46	142.67	117.91	1.64	
X	A.A.	5	8	1	415.88	410.88	76.80	42.24		
X	M.A.	6	26	1	354.42	364.18	143.48	104.25	.36	
X	A.A.	6	8	1	399.38	387.17	87.66	80.51		
X	M.A.	7	26	1	360.77	383.64	147.90	94.71	1.73	
X	A.A.	7	8	1	403.13	427.54	97.09	32.79		
X	M.A.	8	26	1	367.31	366.82	137.25	112.16	0.05	
X	A.A.	8	8	1	401.88	375.34	97.95	66.24		
X	M.A.	9	26	1	369.81	372.71	142.57	113.32	3.00	
X	A.A.	9	8	1	386.88	445.56	87.00	41.54		

TABLE XXIII: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
X	A.I.	1	5	1	409.00	409.34	180.13	35.13	2.58	NA
X	A.A.	1	8	1	400.63	444.16	89.67	34.05		
X	A.I.	2	5	1	393.00	335.68	179.80	90.28	3.00	
X	A.A.	2	8	1	386.88	402.70	78.14	63.20		
X	A.I.	3	5	1	393.00	364.00	168.72	81.15	4.37	
X	A.A.	3	8	1	391.25	437.50	112.16	25.25		
X	A.I.	4	5	1	368.00	366.88	188.59	88.47	0.41	
X	A.A.	4	8	1	400.00	395.70	106.92	71.86		
X	A.I.	5	5	1	404.00	309.91	134.37	86.17	7.79*	
X	A.A.	5	8	1	416.88	421.31	76.81	42.24		
X	A.I.	6	5	1	369.00	287.58	190.80	47.06	7.06*	
X	A.A.	6	8	1	399.38	400.27	87.66	80.51		
X	A.I.	7	5	1	395.00	358.34	181.61	84.12	4.19	
X	A.A.	7	8	1	403.13	434.79	97.09	32.79		
X	A.I.	8	5	1	416.00	297.40	175.60	62.42	4.33	
X	A.A.	8	8	1	401.88	384.75	97.95	66.24		
X	A.I.	9	5	1	380.00	333.48	174.27	118.14	4.92*	
X	A.A.	9	8	1	386.88	447.20	87.00	41.54		
X	M.A.	1	40	2	399.75	440.00	98.78	75.67	2.17	
X	A.I.	1	9	2	482.22	396.71	47.09	70.63		
X	M.A.	2	40	2	402.88	409.83	83.57	80.40	1.27	
X	A.I.	2	9	2	398.33	375.21	87.41	107.34		
X	M.A.	3	40	2	374.00	406.17	101.67	97.58	0.07	
X	A.I.	3	9	2	395.00	396.48	101.55	95.60		
X	M.A.	4	40	2	387.63	411.66	99.00	87.32	1.35	
X	A.I.	4	9	2	448.33	370.94	72.62	104.45		
X	M.A.	5	40	2	434.63	442.66	72.98	73.49	10.16	
X	A.I.	5	9	2	399.44	333.51	101.75	152.98		
X	M.A.	6	40	2	363.88	379.07	102.55	100.75	0.01	
X	A.I.	6	9	2	396.11	381.91	128.69	97.08		
X	M.A.	7	40	2	396.00	427.77	104.23	80.44	2.50	
X	A.I.	7	9	2	435.00	381.01	96.12	89.51		
X	M.A.	8	40	2	368.50	385.35	111.38	92.76	0.03	
X	A.I.	8	9	2	400.00	383.44	97.33	95.97		
X	M.A.	9	40	2	392.25	433.68	110.08	63.71	4.42*	
X	A.I.	9	9	2	393.89	370.33	99.86	133.87		

TABLE XXTII: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff
X	N.A.	1	40	2	399.75	436.00	98.78	75.67	0.39	NA
X	A.A.	1	7	2	352.14	454.98	118.71	56.50		
X	N.A.	2	40	2	402.88	408.22	83.57	80.40	1.18	
X	A.A.	2	7	2	362.86	370.90	118.11	108.20		
X	N.A.	3	40	2	374.00	404.13	106.67	97.58	0.07	
X	A.A.	3	7	2	339.29	392.81	110.99	131.16		
X	N.A.	4	40	2	387.63	408.58	100.00	87.32	.33	
X	A.A.	4	7	2	309.29	385.96	117.52	106.83		
X	N.A.	5	40	2	434.63	445.01	72.03	73.49	0.06	
X	A.A.	5	7	2	432.14	452.53	81.41	75.54		
X	N.A.	6	40	2	363.88	376.43	102.59	100.75	0.16	
X	A.A.	6	7	2	322.86	359.67	112.79	93.34		
X	N.A.	7	40	2	396.00	425.71	104.22	80.44	0.02	
X	A.A.	7	7	2	395.00	420.93	73.05	69.46		
X	N.A.	8	40	2	368.50	381.33	111.38	92.76	0.37	
X	A.A.	8	7	2	339.29	401.68	123.13	71.11		
X	N.A.	9	40	2	392.25	443.68	110.08	63.71	0.09	
X	A.A.	9	7	2	405.71	425.38	67.06	79.80		
X	A.I.	1	9	2	482.22	391.77	47.09	70.09	3.54	
X	A.A.	1	7	2	352.14	469.87	118.71	56.50		
X	A.I.	2	9	2	398.33	368.05	87.41	107.34	0.00	
X	A.A.	2	7	2	362.86	367.51	118.11	108.20		
X	A.I.	3	9	2	395.00	385.74	101.55	95.60	0.11	
X	A.A.	3	7	2	339.29	404.04	110.99	131.16		
X	A.I.	4	9	2	448.33	346.60	72.62	104.46	1.32	
X	A.A.	4	7	2	309.29	420.09	117.52	106.83		
X	A.I.	5	9	2	399.44	335.79	101.75	152.98	3.65	
X	A.A.	5	7	2	432.14	435.41	81.41	75.54		
X	A.I.	6	9	2	396.11	375.79	128.69	97.08	0.04	
X	A.A.	6	7	2	322.86	366.12	112.79	93.34		
X	A.I.	7	9	2	435.00	377.82	96.12	89.51	3.52	
X	A.A.	7	7	2	395.00	436.38	73.05	69.46		
X	A.I.	8	9	2	400.00	378.95	97.33	95.97	0.86	
X	A.A.	8	7	2	339.29	411.35	123.13	71.11		
X	A.I.	9	9	2	393.89	375.23	99.86	133.87	0.94	
X	A.A.	9	7	2	405.71	419.70	67.06	79.80		

TABLE XXIII: CONTINUED

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School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
X	M.A.	1	14	3	420.36	421.73	102.67	78.16	0.84	NA
X	A.I.	1	8	3	473.75	455.73	39.58	69.19		
X	M.A.	2	14	3	415.36	424.17	107.00	75.91	0.00	
X	A.I.	2	8	3	446.88	422.70	60.93	86.84		
X	M.A.	3	14	3	388.21	429.70	110.23	73.78	0.02	
X	A.I.	3	8	3	451.88	424.90	61.54	61.54		
X	M.A.	4	14	3	423.93	414.87	103.79	80.98	0.22	
X	A.I.	4	8	3	449.38	431.48	76.34	71.48		
X	M.A.	5	14	3	439.64	448.64	102.31	70.02	0.01	
X	A.I.	5	8	3	451.25	450.51	71.36	62.09		
X	M.A.	6	14	3	385.71	378.59	124.03	105.61	0.00	
X	A.I.	6	8	3	389.38	376.21	116.23	124.80		
X	M.A.	7	14	3	436.79	418.73	89.90	59.73	1.48	
X	A.I.	7	8	3	450.63	451.60	48.57	54.77		
X	M.A.	8	14	3	398.57	380.14	100.42	103.45	0.00	
X	A.I.	8	8	3	401.88	379.75	115.60	112.41		
X	M.A.	9	14	3	429.64	420.17	94.14	87.44	2.91	
X	A.I.	9	8	3	449.38	473.45	61.62	30.51		

TABLE XXIV: EXPERIMENTAL GROUP DIFFERENCES IN MULTICULTURAL PERCEPTIONS BY ETHNIC GROUPS IN THREE GRADE LEVELS BASED ON THE SWCEL CULTURAL SENSITIVITY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
X	M.A.	1	27	1	376.85	400.19	134.58	88.19	2.99	NA
X	M.A.	1	39	2	397.05	434.10	98.58	76.32		
X	M.A.	2	27	1	390.37	391.22	128.94	95.45	0.73	
X	M.A.	2	39	2	400.26	409.03	82.99	81.42		
X	M.A.	3	39	1	363.70	385.11	137.11	83.73	0.99	
X	M.A.	3	27	2	370.51	408.00	100.57	96.88		
X	M.A.	4	39	1	374.44	389.44	142.14	89.07	0.90	
X	M.A.	4	27	2	384.62	410.52	98.43	88.06		
X	M.A.	5	39	1	390.19	371.83	141.96	117.96	8.53**	
X	M.A.	5	27	2	432.69	438.04	71.99	74.21		
X	M.A.	6	39	1	360.19	355.21	143.83	106.19	1.26	
X	M.A.	6	27	2	360.13	382.19	101.16	98.34		
X	M.A.	7	39	1	366.11	379.08	147.67	98.19	5.86*	
X	M.A.	7	27	2	393.21	428.46	104.06	73.95		
X	M.A.	8	39	1	372.59	365.00	137.36	111.13	0.61	
X	M.A.	8	27	2	364.87	382.69	110.44	93.40		
X	M.A.	9	39	1	375.00	369.59	142.39	112.56	9.70**	
X	M.A.	9	27	2	389.23	436.95	109.84	59.52		
X	M.A.	1	26	1	371.92	397.29	134.73	88.33	0.52	
X	M.A.	1	14	3	420.36	417.89	102.67	78.16		
X	M.A.	2	26	1	385.96	391.58	129.38	97.22	0.66	
X	M.A.	2	14	3	415.36	415.27	107.00	75.91		
X	M.A.	3	26	1	358.08	390.06	136.63	82.98	1.41	
X	M.A.	3	14	3	388.21	421.68	110.23	73.78		
X	M.A.	4	26	1	369.42	393.56	142.48	90.59	0.16	
X	M.A.	4	14	3	423.93	405.18	103.79	80.98		
X	M.A.	5	26	1	385.58	366.63	142.67	117.91	4.50	
X	M.A.	5	14	3	439.64	431.62	102.31	70.02		
X	M.A.	6	26	1	354.42	364.44	143.48	104.25	0.05	
X	M.A.	6	14	3	385.71	371.47	124.03	105.61		
X	M.A.	7	26	1	360.77	388.08	147.90	94.71	0.39	
X	M.A.	7	14	3	436.79	405.36	89.90	59.73		
X	M.A.	8	26	1	367.31	367.95	134.25	112.16	0.01	
X	M.A.	8	14	3	398.57	372.02	100.42	103.45		
X	M.A.	9	26	1	369.81	376.72	142.57	113.32	0.81	
X	M.A.	9	14	3	429.64	408.94	94.00	87.44		

TABLE XXIV: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff
X	M.A.	1	39	2	397.05	436.50	98.58	76.32	0.30	NA
X	M.A.	1	14	3	420.36	422.97	102.67	78.16		
X	M.A.	2	39	2	400.26	411.42	82.99	81.42	0.05	
X	M.A.	2	14	3	415.36	417.10	107.00	75.91		
X	M.A.	3	39	2	370.51	409.29	100.57	96.86	0.22	
X	M.A.	3	14	3	388.21	422.70	110.23	73.78		
X	M.A.	4	39	2	384.62	412.23	98.44	88.06	0.01	
X	M.A.	4	14	3	423.93	409.50	103.79	80.98		
X	M.A.	5	39	2	432.69	444.55	71.99	74.21	0.00	
X	M.A.	5	14	3	439.64	445.76	102.31	70.02		
X	M.A.	6	39	2	360.13	383.48	101.16	98.34	0.08	
X	M.A.	6	14	3	385.71	374.58	124.03	105.61		
X	M.A.	7	39	2	393.21	433.99	104.06	73.95	1.24	
X	M.A.	7	14	3	436.79	409.96	89.90	59.73		
X	M.A.	8	39	2	364.87	384.15	110.44	93.40	0.17	
X	M.A.	8	14	3	398.57	372.00	100.42	103.45		
X	M.A.	9	39	2	389.23	438.74	109.84	59.52		
X	M.A.	9	14.	3	429.64	414.23	94.15	87.44	1.26	
X	A.I.	1	6	1	425.83	421.57	168.69	41.58	0.36	
X	A.I.	1	8	2	478.75	399.44	48.85	70.00		
X	A.I.	2	6	1	412.50	359.05	169.83	98.55	0.00	
X	A.I.	2	8	2	384.38	360.71	82.71	106.67		
X	A.I.	3	6	1	412.50	379.05	160.08	85.77	0.07	
X	A.I.	3	8	2	380.63	393.21	98.70	96.85		
X	A.I.	4	6	1	391.67	390.46	180.11	89.42	0.16	
X	A.I.	4	8	2	440.63	365.90	73.47	104.76		
X	A.I.	5	6	1	412.50	324.36	124.13	88.53	0.02	
X	A.I.	5	8	2	392.50	314.23	105.89	158.11		
X	A.I.	6	6	1	385.00	322.69	177.82	82.50	0.95	
X	A.I.	6	8	2	387.50	375.48	134.03	96.91		
X	A.I.	7	6	1	413.33	374.06	170.78	82.65	0.03	
X	A.I.	7	8	2	426.25	381.95	98.52	93.07		
X	A.I	8	6	1	431.67	320.86	164.08	88.88	1.55	
X	A.I	8	8	2	386.25	388.11	94.63	96.54		
X.	A.I	9	6	1	394.17	354.59	162.21	120.96	0.00	
X	A.I	9	8	2	385.00	359.06	102.50	135.93		

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
X	A.I.	1	6	1	425.83	421.57	168.69	41.58	.66	NA
X	A.I.	1	8	3	473.75	451.32	39.59	69.19		
X	A.I.	2	6	1	412.50	360.25	169.83	98.55	1.46	NA
X	A.I.	2	8	3	446.88	428.56	60.93	86.84		
X	A.I.	3	6	1	412.50	387.97	160.08	85.77	0.95	NA
X	A.I.	3	8	3	451.88	429.65	51.49	61.54		
X	A.I.	4	6	1	391.67	388.76	180.11	89.42	0.90	NA
X	A.I.	4	8	3	449.38	435.93	76.34	71.48	.90	
X	A.I.	5	6	1	412.50	331.19	124.13	88.53	6.93*	NA
X	A.I.	5	8	3	451.25	452.23	71.36	62.09		
X	A.I.	6	6	1	385.00	323.21	177.82	82.50	.75	NA
X	A.I.	6	8	3	389.38	376.34	116.23	124.80		
X	A.I.	7	6	1	413.33	375.60	170.78	82.65	3.51	NA
X	A.I.	7	8	3	450.63	450.18	48.57	54.77		
X	A.I.	8	6	1	431.67	321.27	164.08	88.87	1.36	NA
X	A.I.	8	8	3	401.88	385.30	115.60	112.41		
X	A.I.	9	6	1	394.17	367.42	162.21	120.96	4.97*	NA
X	A.I.	9	8	3	449.38	470.69	61.62	30.51		
X	A.I.	1	6	2	478.75	398.44	48.85	70.00	2.41	NA
X	A.I.	1	8	3	473.75	453.44	39.44	69.19		
X	A.I.	2	6	2	384.38	378.81	82.71	106.67	.37	NA
X	A.I.	2	8	3	446.88	411.19	60.93	86.84		
X	A.I.	3	6	2	380.63	407.78	98.70	96.86	.03	NA
X	A.I.	3	8	3	451.88	415.34	51.47	61.54		
X	A.I.	4	6	2	440.63	370.06	73.47	104.76	2.49	NA
X	A.I.	4	8	3	449.38	432.44	76.34	71.48		
X	A.I.	5	6	2	392.50	336.70	105.87	158.11	3.04	NA
X	A.I.	5	8	3	451.25	427.67	71.36	62.09		
X	A.I.	6	6	2	387.50	376.02	134.03	96.91	.00	NA
X	A.I.	6	8	3	389.38	376.48	116.23	124.80		
X	A.I.	7	6	2	426,25	390.94	98.52	93.07	2.57	NA
X	A.I.	7	8	3	450.63	445.94	48.57	54.77		
X	A.I.	8	6	2	386.25	388.81	94.63	96.54	.12	NA
X	A.I.	8	8	3	401.88	374.94	115.60	112.41		
X	A.I.	9	6	2	385.00	385.33	102.50	135.93	2.86	NA
X	A.I.	9	8	3	449.36	449.67	61.62	30.51		

TABLE XXIV: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Pre-Test Mean	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
X	A.A.	1	9	1	334.44	435.89	96.14	38.61	1.01	NA
X	A.A.	1	6	2	368.33	461.16	120.86	51.89	1.65	
X	A.A.	2	9	1	364.44	408.14	97.23	59.98		NA
X	A.A.	2	6	2	392.50	345.30	100.62	113.30		
X	A.A.	3	9	1	376.67	428.28	113.51	29.89	.53	NA
X	A.A.	3	6	2	352.50	390.92	114.67	141.65		
X	A.A.	4	9	1	392.78	396.54	102.86	68.51	.22	NA
X	A.A.	4	6	2	305.00	370.19	126.43	113.56		
X	A.A.	5	9	1	427.22	426.11	78.11	43.98	.51	NA
X	A.A.	5	6	2	419.17	449.16	80.96	80.76		
X	A.A.	6	9	1	404.44	387.67	83.89	79.78	.23	NA
X	A.A.	6	6	2	302.50	359.33	109.27	99.57		
X	A.A.	7	9	1	406.11	432.60	91.92	31.08	.13	NA
X	A.A.	7	6	2	389.17	421.94	77.38	75.00		
X	A.A.	8	9	1	404.44	382.44	92.63	63.71	.13	NA
X	A.A.	8	6	2	325.00	397.18	127.51	75.43		
X	A.A.	9	9	1	391.11	451.16	82.90	40.42	.92	NA
X	A.A.	9	6	2	402.50	416.59	71.93	82.80		

TABLE XXV: EXPERIMENTAL AND CONTROL GROUP DIFFERENCES IN MULTICULTURAL PERCEPTIONS BY ETHNIC GROUP, SCHOOL AND GRADE LEVEL, BASED ON THE SWCEL CULTURAL SENSITIVITY TEST

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev.		F Ratio	% Diff.
						Pre-	Post		
San Rafael	M.A.	1	7	1	372.14		114.82	.00	1.58
Control	M.A.	1	4	1	366.25		119.60		
San Rafael	M.A.	2	7	1	397.86		75.21	.38	10.77
Control	M.A.	2	4	1	355.00		132.62		
San Rafael	M.A.	3	7	1	385.00		89.68	.19	7.14
Control	M.A.	3	4	1	357.50		89.90		
San Rafael	M.A.	4	7	1	381.43		95.68	.81	39.71
Control	M.A.	4	4	1	306.25		154.41		
San Rafael	M.A.	5	7	1	364.29		119.95	.40	13.92
Control	M.A.	5	4	1	415.00		106.18		
San Rafael	M.A.	6	7	1	365.71		90.96	.07	5.32
Control	M.A.	6	4	1	346.25		126.01		
San Rafael	M.A.	7	7	1	407.86		74.59	.00	.09
Control	M.A.	7	4	1	407.50		120.03		
San Rafael	M.A.	8	7	1	365.71		102.41	.31	13.53
Control	M.A.	8	4	1	316.25		160.44		
San Rafael	M.A.	9	7	1	377.86		103.26	.05	4.54
Control	M.A.	9	4	1	395.00		101.61		
San Rafael	A.A.	1	4	1	472.50		18.20	1.18	17.99
Control	A.A.	1	4	1	387.50		134.19		
San Rafael	A.A.	2	4	1	420.00		56.24	.27	10.83
Control	A.A.	2	4	1	374.50		138.25		
San Rafael	A.A.	3	4	1	448.75		17.81	1.27	97.53
Control	A.A.	3	4	1	368.75		12..57		
San Rafael	A.A.	4	4	1	430.00		30.82	.48	11.92
Control	A.A.	4	4	1	378.75		123.61		
San Rafael	A.A.	5	4	1	441.25		37.31	.17	6.52
Contro	A.A.	5	4	1	412.50		114.37		
San Rafael	A.A.	6	4	1	453.75		30.08	1.84	21.49
Control	A.A.	6	4	1	356.25		120.54		
San Rafael	A.A.	7	4	1	461.25		25.34	.89	15.72
Control	A.A.	7	4	1	388.75		130.11	.30	10.64
San Rafael	A.A.	8	4	1	411.25		39.43	.30	10.64
Control	A.A.	8	4	1	367.50		130.31		
San Rafael	A.A.	9	4	1	486.25		4.15	2.25	20.05
Control	A.A.	9	4	1	388.75		112.49		

TABLE XXV: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Sierra V.	M.A.	1	17	1	413.53		70.64	.96	11.43
Control	M.A.	1	4	1	366.25		119.60		
Sierra V.	M.A.	2	17	1	397.06		103.20	.43	10.59
Control	M.A.	2	4	1	355.00		132.62		
Sierra V.	M.A.	3	17	1	403.53		72.05	1.08	11.41
Control	M.A.	3	4	1	357.50		89.90		
Sierra V.	M.A.	4	17	1	407.65		80.08	3.09	24.87
Control	M.A.	4	4	1	306.25		154.41		
Sierra V.	M.A.	5	17	1	372.35		111.88	.43	11.45
Control	M.A.	5	4	1	415.00		106.18		
Sierra V.	M.A.	6	17	1	374.47		104.24	.19	7.54
Control	M.A.	6	4	1	346.25		126.01		
Sierra V.	M.A.	7	17	1	380.29		101.52	.19	7.15
Control	M.A.	7	4	1	407.50		120.03		
Sierra V.	M.A.	8	17	1	375.00		116.56	.63	15.67
Control	M.A.	8	4	1	316.25		160.44		
Sierra V.	M.A.	9	17	1	380.00		119.45	.04	3.95
Control	M.A.	9	4	1	395.00		101.61		
Sierra V.	A.A.	1	4	1	416.25		20.12	.13	6.91
Control	A.A.	1	4	1	387.50		134.19		
Sierra V.	A.A.	2	4	1	386.25		65.23	.01	3.04
Control	A.A.	2	4	1	374.50		138.25		
Sierra V.	A.A.	3	4	1	426.25		26.55	.64	13.49
Control	A.A.	3	4	1	368.75		121.57		
Sierra V.	A.A.	4	4	1	355.00		81.01	.07	6.70
Control	A.A.	4	4	1	378.75		123.61		
Sierra V.	A.A.	5	4	1	400.00		36.40	.03	3.18
Control	A.A.	5	4	1	412.50		114.37		
Sierra V.	A.A.	6	4	1	342.50		76.61	.02	4.01
Control	A.A.	6	4	1	356.25		120.54		
Sierra V.	A.A.	7	4	1	408.75		11.39	.07	4.89
Control	A.A.	7	4	1	388.75		130.11		
Sierra V.	A.A.	8	4	1	358.75		76.43	.01	2.44
Control	A.A.	8	4	1	367.50		130.31		
Sierra V.	A.A.	9	4	1	408.75		20.71	.09	4.89
Control	A.A.	4	4	1	388.75		112.49		

TABLE XXV: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
San Rafael	A.A.	1	5	2	458.00		56.62	.89	11.03
Control	A.A.	1	8	2	407.50		100.16		
San Rafael	A.A.	2	5	2	321.00		103.17	1.21	23.05
Control	A.A.	2	8	2	395.00		111.44		
San Rafael	A.A.	3	5	2	371.00		150.35	.03	3.61
Control	A.A.	3	8	2	384.38		90.67		
San Rafael	A.A.	4	5	2	349.00		112.31	1.32	18.37
Control	A.A.	4	8	2	413.13		72.50		
San Rafael	A.A.	5	5	2	440.00		86.43	.74	12.36
Control	A.A.	5	8	2	385.63		110.61		
San Rafael	A.A.	6	5	2	334.00		94.25	1.44	20.36
Control	A.A.	6	8	2	402.00		89.12		
San Rafael	A.A.	7	5	2	405.00		73.48	.00	1.08
Control	A.A.	7	8	2	400.63		85.53		
San Rafael	A.A.	8	5	2	363.00		58.87	.13	5.89
Control	A.A.	8	8	2	384.38		108.24		
San Rafael	A.A.	9	9	2	403.00		84.30	.04	2.76
Control	A.A.	9	9	2	391.88		88.92		
Sierra V.	M.A.	1	21	2	442.83		59.67	.00	.22
Control	M.A.	1	7	2	443.86		72.35		
Sierra V.	M.A.	2	21	2	423.81		71.96	.91	7.36
Control	M.A.	2	7	2	455.00		72.31		
Sierra V.	M.A.	3	21	2	414.52		94.38	.06	2.53
Control	M.A.	3	7	2	425.00		74.07		
Sierra V.	M.A.	4	21	2	420.24		72.84	.00	.74
Control	M.A.	4	7	2	417.14		90.75		
Sierra V.	M.A.	5	21	2	457.14		78.34	1.56	8.47
Control	M.A.	5	7	2	495.86		16.65		
Sierra V.	M.A.	6	21	2	407.38		85.38	.75	7.94
Control	M.A.	6	7	2	439.71		72.00		
Sierra V.	M.A.	7	21	2	433.10		79.02	.01	1.18
Control	M.A.	7	7	2	428.00		84.00		
Sierra V.	M.A.	8	21	2	401.19		86.52	.01	1.36
Control	M.A.	8	7	2	395.71		134.07		
Sierra V.	M.A.	9	21	2	446.90		51.07	.58	3.73
Control	M.A.	9	7	2	463.57		38.70		

TABLE XXV: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Cubero	M.A.	1	3	2	428.33		58.64	.08	3.62
Control	M.A.	1	7	2	443.86		72.35		
Cubero	M.A.	2	3	2	438.33		43.65	.11	3.80
Control	M.A.	2	7	2	455.00		72.31		
Cubero	M.A.	3	3	2	425.00		49.67	.00	.00
Control	M.A.	3	7	2	425.00		74.07		
Cubero	M.A.	4	3	2	411.67		44.97	.00	1.33
Control	M.A.	4	7	2	417.14		90.75		
Cubero	M.A.	5	3	2	423.73		57.78	7.38*	17.13
Control	M.A.	5	7	2	495.86		16.65		
Cubero	M.A.	6	3	2	421.67		59.07	.11	4.28
Control	M.A.	6	7	2	439.71		72.00		
Cubero	M.A.	7	3	2	426.67		41.70	.00	.31
Control	M.A.	7	7	2	428.00		84.00		
Cubero	M.A.	8	3	2	415.00		67.45	.04	4.65
Control	M.A.	8	7	2	395.71		134.07		
Cubero	M.A.	9	3	2	423.33		59.49	1.28	9.81
Control	M.A.	9	7	2	463.57		38.70		
San Rafael	M.A.	1	15	2	428.33		96.60	.13	3.62
Control	M.A.	1	7	2	443.86		72.35		
San Rafael	M.A.	2	15	2	385.67		92.64	2.77	17.98
Control	M.A.	2	7	2	455.00		72.31		
San Rafael	M.A.	3	15	2	396.67		105.79	.37	7.14
Control	M.A.	3	7	2	425.00		74.07		
San Rafael	M.A.	4	15	2	398.33		109.77	.14	4.72
Control	M.A.	4	7	2	417.14		90.75		
San Rafael	M.A.	5	15	2	430.20		67.37	5.87*	15.26
Control	M.A.	5	7	2	495.86		16.65		
San Rafael	M.A.	6	15	2	339.00		105.69	4.74*	29.71
Control	M.A.	6	7	2	439.71		72.00		
San Rafael	M.A.	7	15	2	429.33		71.50	.00	.31
Control	M.A.	7	7	2	428.00		89.00		
San Rafael	M.A.	8	15	2	347.00		96.61	.85	14.04
Control	M.A.	8	7	2	395.71		134.07		
San Rafael	M.A.	9	15	2	427.33		67.70	1.58	8.48
Control	M.A.	9	7	2	463.67		38.70		

TABLE XXV: CONTINUED

School or Sample	Ethnic Group	Variable	n	Grade Level	Post Test Mean	St'd. Dev. Pre-	St'd. Dev. Post	F Ratio	% Diff.
Cubero	M.A.	1	3	3	501.67		8.50	2.64	15.14
Control	M.A.	1	7	3	425.71		72.08		
Cubero	M.A.	2	3	3	466.67		33.06	.21	5.22
Control	M.A.	2	7	3	442.29		77.85		
Cubero	M.A.	3	3	3	485.00		17.80	1.17	14.14
Control	M.A.	3	7	3	416.43		97.31		
Cubero	M.A.	4	3	3	419.67		16.50	2.43	11.23
Control	M.A.	4	7	3	436.43		53.77		
Cubero	M.A.	5	3	3	505.00		4.08	1.36	11.49
Control	M.A.	5	7	3	447.00		76.82		
Cubero	M.A.	6	3	3	453.33		40.89	1.83	21.53
Control	M.A.	6	7	3	355.71		108.48		
Cubero	M.A.	7	3	3	480.00		32.40	1.69	13.69
Control	M.A.	7	7	3	414.29		75.14		
Cubero	M.A.	8	3	3	493.33		12.47	2.87	22.10
Control	M.A.	8	7	3	384.29		99.33		
Cubero	M.A.	9	3	3	480.00		38.94	.78	10.57
Control	M.A.	9	7	3	429.29		85.00		
Sierra V.	M.A.	1	11	3	402.73		75.21	.36	5.71
Control	M.A.	1	7	3	425.71		72.08		
Sierra V.	M.A.	2	11	3	407.73		79.33	.73	8.48
Control	M.A.	2	7	3	442.29		77.85		
Sierra V.	M.A.	3	11	3	408.74		74.78	.03	1.91
Control	M.A.	3	7	3	417.43		97.31		
Sierra V.	M.A.	4	11	3	390.91		78.07	1.62	11.64
Control	M.A.	4	7	3	436.43		53.77		
Sierra V.	M.A.	5	11	3	430.91		71.12	.18	3.73
Control	M.A.	5	7	3	447.00		76.82		
Sierra V.	M.A.	6	11	3	357.73		108.53	.00	.56
Control	M.A.	6	7	3	355.71		108.48		
Sierra V.	M.A.	7	11	3	400.91		53.97	.17	3.34
Control	M.A.	7	7	3	414.29		75.19		
Sierra V.	M.A.	8	11	3	348.64		95.35	.51	10.23
Control	M.A.	8	7	3	384.29		99.33		
Sierra V.	M.A.	9	11	3	400.45		89.23	.41	7.20
Control	M.A.	9	7	3	429.29		85.00		